THE

Journal of the American Medical Association.

EDITED UNDER THE DIRECTION OF THE BOARD OF TRUSTEES.

PUBLISHED WEEKLY.

VOL. XV. CHICAGO, DECEMBER 20, 1890. No. 25.

ORIGINAL ARTICLES.

FURTHER COMMUNICATION ON A CURE FOR TUBERCULOSIS.

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OF BERLIN.

[Translated for THE JOURNAL.

A few months ago in an address before the International Medical Congress, I described a remedy that would render animals refractory to the tubercle bacillus, and would stop the tubercular process in those already affected. Since that time observations have been made upon human beings, which are described in the following pages.

It was originally my intention to complete these observations, and to gain extensive experience with the use of the remedy, and also its preparation upon a large scale before publishing anything. But, in spite of all precautions, so much has reached the public, and such false and exaggerated ideas have been formed, that it now seems necessary to avoid further error by giving an account of the present state of the inquiry. Naturally this report can be but brief and many important questions must remain open.

The investigations have been carried on under my direction by Dr. A. Libbertz and Stabsarzt Dr. E. Pfuhl, some of which are finished and others still in progress. The necessary patients have been furnished by Prof. Brieger from his policlinic, Dr. Levy from his private surgical clinic, Geheimrath Frærtzel and Oberstabsarzt R. Köhler in the Charité Hospital, and Geheimrath von Bergmann in the University Surgical Clinic. To all of these gentlemen as well as their assistants who have helped in the observations, I wish to express my deep obligations, and to thank them for their lively interest. Without this extensive assistance it would have been impossible to have advanced the subject so far in a few months.

Regarding the origin and preparation of the remedy, I cannot now make any statement, as my work is not yet completed, and it is reserved for a further communication.[1]

The remedy consists of a clean brownish liquid, that does not require any special care in keeping. In use it must be more or less diluted with distilled water and is then liable to undergo decomposition, from bacterial vegetation; it then becomes cloudy and is no longer fit for use. To prevent this the solution must be heated and preserved under cotton plugs, or what is more convenient, a one-half per cent. solution of phenol may be employed. By frequent heating and also when mixed with phenol it seems to lose some of its strength, especially in very dilute solutions; for this reason I have generally employed a freshly diluted specimen.

In the stomach the remedy has no effect; to obtain its action it must be injected beneath the skin. In our experiments we have employed exclusively a small syringe suggested by myself for bacteriological work; it is furnished with a small rubber ball and has no piston. Such a syringe is easily kept aseptic by washing with absolute alcohol, and to this we attribute our absolute freedom from abscess in more than 1000 injections.

After several trials we would fix the point of election, for the injections, at either between the shoulder blades or in the lumbar region. In these places the injection causes little, and usually no local reaction, and is always painless.

As regards the effect of the remedy upon man, it was apparent from the outset that he reacted very differently from the guinea pig, the animal usually employed in these experiments. A further proof of the rule that experiments upon animals are not sufficient to confirm like relations upon the human being.

Man was found to be extraordinarily more sensitive to the action of the remedy than guinea pigs. One can inject 2 ccm. of the fluid into a healthy guinea pig without causing special inconvenience. In an adult healthy man one-fourth of a ccm. will cause an intense reaction—in relation to the body weight, one fifteen hundredth of the quantity readily borne by the guinea pig.

The symptoms produced by an injection of 0.25 ccm. I have experienced myself; they were in short, as follows: Three to four hours after the injection pain in the limbs, weakness, inclination

[1] Physicians wishing to use the remedy can obtain a supply from Dr. A. Libbertz, (Berlin, N. W., Lüneburgerstrasse 28, ii.) who has undertaken the preparation of the remedy, with the coöperation of r. Pfuhl and myself. I wish, however, to remark that the quantities obtainable at present is somewhat small, and larger supplies only be had after some weeks.

to cough, difficult respiration which rapidly increased; in the fifth hour a chill came on that lasted one hour; at the same time nausea, vomiting, and an elevation of temperature reaching 39.6°; after twelve hours some heaviness remained, the temperature sunk, reaching the normal on the following day. Heaviness of the limbs, fatigue persisted for some days, as did a little pain and redness at the site of the injection.

The smallest dose producing a reaction is about 0.01 ccm. (equal to a cubic centimeter diluted one hundred times) as determined by numerous observations. Most men react to this dose, with slight pain in the limbs and fatigue lasting but a short time. In a few, a slight rise in temperature was noted, reaching 38°, or a little above.

While such an extraordinary difference in the dose is noted between experimental animals and man, in other respects there is a great similarity.

The most important of these is the action of the remedy upon the tubercular process, of whatever kind.

I will make no further reference to its effect upon animals, as that would carry me too far, but will at once turn to the extraordinary effects produced upon tubercular human beings.

The healthy man reacts, as we have stated, to 0.01 ccm. slightly or not at all. Sick people who are not tuberculous react in much the same way, as we have shown by abundant observations. In the tuberculous, however, the relation is very different; when the same dose (0.01) is injected[2] a strong, general as well as local reaction is noted.

The general reaction consists of fever, which is usually ushered in by a chill, the body temperature reaches 39°, sometimes 40, and occasionally 41°. This is accompanied by pain in the limbs, coughing, great fatigue and often nausea and vomiting. In a few cases slight yellowing of the skin, and in some others a measles like eruption on the breast and throat. The attack as a rule begins from four to five hours after the injection and lasts for from twelve to fifteen hours. Exceptionally it may appear later and run with less intensity. The patients are but little affected by the attacks, and as soon as it is over feel reasonably well, commonly better than before.

The local reaction can be better observed upon those whose tubercular process can be seen,—for example, lupus. In these, changes appear that show the specific anti-tubercular action of the remedy to a surprising degree. Some hours after an injection into the back, far removed from the diseased point, the lupus patches begin to swell and redden, commonly before the beginning of the chill. During the febrile stage the swelling and redness increase, and may reach a high grade, so that the lupus tissue appears brownish-red and necrotic. The swollen and reddened lupus mass is often surrounded by a sharp white ring, about one centimeter broad, which in its turn is surrounded by a broad red ring. When the fever subsides the swollen lupus tissue begins to go down, and in two or three days it may disappear. The lupus masses are covered with a soft exudate that rapidly dries in the air, forming a crust, which falls off, in some cases after a single injection, leaving a smooth red cicatrix. Usually several injections are required to remove the lupus tissue,—but of this later. It is important in this connection to note that the process limits itself strictly to the affected portions of the skin; the smallest and most obscure masses are brought into view, while the cicatricial tissue in which the lupoid process has ceased are not affected.

The observation upon lupus is so instructive and convincing as to the specific action of the remedy, that every one who wishes to employ it, ought to begin his observations upon a case of lupus.

Not so apparent, but still objective in character is its action, in tuberculosis of the joints, lymphatic glands and bones; in which increase of pain, swelling and reddening of the superficial parts can be seen.

The reaction in the internal organs, the lungs for example, is not so apparent unless we assume that the increased cough and expectoration are evidence of such local action. In these cases it is the general reaction that is dominant. We may, however, assume that here changes are produced like those directly observed in lupus.

The reaction above described invariably takes place after a dose of 0.01 ccm. if a tubercular process is present any where in the body. I do not think I go too far if I assume that we have in this remedy a most important aid to diagnosis. One will be in a position to diagnosticate doubtful cases of phthisis, before bacilli or elastic fibres present themselves in the sputum and before the process reveals itself by physical signs. Glandular affections, latent bone tuberculosis, doubtful skin tuberculosis and the like, will be by this means easily recognized. In apparently cured cases it will be possible for us to definitely determine if the diseased process has ended its course, or if some diseased spot remains from which, like a spark under the ashes, the diseased process may be again lighted up.

Its power to cure is, however, of greater importance than its diagnostic relations.

In describing the changes produced in the skin affected with lupus by a subcutaneous injection of the remedy, I said that after the subsidence of the swelling and redness the parts did not return to their former condition, but that they were more or less changed. In some cases after a sufficient injection the mass dies and is later cast off. In

[2] To children from three to five years of age we have given one-tenth of this dose *i.e.*, 0.001; to very weak children only 0.0005 ccm., with this last vigorous but not dangerous reaction has been obtained.

other cases there seems to be a melting down of the tissue; in these cases repeated injections are needed to complete the process. In what way this action is brought about is not yet certain, as the necessary histological observations have not yet been made. One thing, however, is certain, that the tubercle bacillus is not killed, but the tissue surrounding the bacilli is alone affected. Beyond this, as is shown by the redness and swelling, we have deep seated changes in the nutrition of the tissues, which according to the use of the remedy destroys them quickly and deeply.

To recapitulate, the remedy does not destroy the bacillus tuberculosis, but the tuberculous tissue, and this clearly defines the limits that bound the action of the substance. It only has the power to affect living tuberculous tissue; dead tissue like caseous masses, and necrotic bone are not affected; in the same way it has no effect upon dead tissue destroyed by itself. Such dead masses may contain living tubercle bacilli, which may be cast out in the necrotic tissue, or under special conditions may again infect neighboring healthy tissue.

This peculiar action of the remedy is most important in order that its therapeutic power may be made as useful as possible. For this purpose the living tuberculous tissue must first be destroyed, and then everything possible should be done, for example by surgical means, to remove the infected tissue; where this is not possible, and the organism must itself eliminate the destroyed tissue, the remedy should be repeatedly employed to protect and prevent the reinfection of healthy tissue.

While the remedy destroys tuberculous tissue, and only operates upon living tissue, it has another and very peculiar property, namely, it may be given in rapidly increasing doses. This may be referred to simple toleration, but when one thinks that the initial dose may be increased 500 times in three weeks one can hardly refer it to tolerance, as no similar remedy of equal potency acts in this way.

The phenomena must rather be explained by the fact that at first considerable living tuberculous tissue is present, but after each injection it becomes less and less, so that there is a rapid decrease in the reaction even with increasing doses. As soon as the patient reacts in the same way as one free from tuberculosis then we may assume that all infected tissue has been destroyed. The treatment should then be continued in increasing doses, with interruptions to prevent reinfection, as long as tubercle bacilli are present in the body.

If this conception and the inference that follows it is correct the future alone will show. They are conclusive so far as I am concerned, in determining the method of treatment, which in our experiments was as follows:

To begin with the simplest case, namely, lupus, we have always injected a full dose 0.01 ccm. and allowed the reaction to follow; after one or two weeks another injection of 0.01 ccm. and so on until the reaction became weaker and finally stopped. In two of these cases, with facial lupus, a smooth scar was obtained in one case after three injections and in the other four. The remaining cases, still under treatment, are greatly improved. All of these patients had had the disease for many years and been treated in various ways, but without result.

In a like manner the glandular bone and joint tuberculosis were treated, receiving large doses at comparatively wide intervals. The results were the same as in lupus, rapid healing in the recent and mild cases, and slow progressive bettering in the severe forms.

The relational conditions are very different in the phthisical, that constituted the bulk of our patients. Patients with tuberculosis of the lungs are much more sensitive to the action of the remedy than those affected with surgical tuberculosis. The early dose of 0.01 ccm. was soon reduced for the phthisical to 0.002 or even 0.001 ccm., and to this they strongly reacted; from this small beginning dose, it may be rapidly increased to a quantity that is well borne by other patients. We recommend that the phthisical be given 0.001 ccm.; when this is followed by an increase in temperature, the same dose should be given daily until no further reaction is produced; then the dose should be increased to 0.002 until this no longer produces a reaction, and so on, increasing the dose 0.001 or at most 0.002 until 0.01 or higher is reached. This mild course is imperative in feeble patients. When this method is employed the patient may be brought to rapidly tolerate large doses, without special rise of temperature. Some strong phthisical patients were treated with large doses to begin with, which were rapidly increased; in these cases a favorable result was more quickly obtained. The action of the remedy in phthisis generally expresses itself by an increase in the cough and expectoration; later these lessen and in the favorable cases ultimately disappear, the expectoration loosing its pus and becoming mucus. The number of bacilli (and only those patients who presented bacilli in the sputum were selected) decreased only when the expectoration became mucus in character. Then they occasionally disappeared, to be found again from time to time, until they were no longer present. At the same time night sweats ceased, the general appearance of the patients was improved and they increased in weight. Those cases in the early stage were freed from all symptoms in from four to six weeks, so that they can be regarded as cured. Also patients with not too large cavities were nearly healed. Only in those cases where there were large cavities, no objective betterment could be seen, but in these there was a lessening of expec-

toration, and an improvement in the subjective conditions. From these observations I must affirm that *this remedy will cure phthisis with certainty in the early stage.*[3] Perhaps it may also be successful in the cases not too far advanced.

Phthisical with large cavities, or those with complications: for example, those whose cavities are infected with the micro organisms of suppuration or who present incurable changes in other organs, will only exceptionally obtain benefit from the use of the remedy. For a time even these cases may be benefited. One must however think that in these cases the original process is affected in the same way, but the power to throw off the dead mass by a secondary suppurative process is lost.

Involuntarily the thought is awakened as to whether the new method cannot be used in connection with surgical measures (*i.e.*, operation for empyema) or other curative means, in the relief of these severe cases. I most strongly advise against the routine use of the remedy in all tubercular processes, without discrimination. The simplest will be the treatment of beginning phthisis and surgical affections, but in all other forms one should employ every resource of medical art; the treatment should be individualized, and all other methods should be employed to aid the action of the remedy. In many cases I have received the decided impression that careful nursing of the patient exercised a most important effect upon the curative result, and for that reason I would recommend the employment of the remedy in special institutions, where the patients can be carefully observed and well cared for. How far the present methods of cure, mountain climate, open air treatment, etc., may be usefully combined with the new measure is not yet determined; but, I believe that these curative factors may be usefully employed in many cases, especially in neglected and severe forms as well as in the convalescent stage.[4]

The important point in the new cure is its earliest possible application. The object should be to employ the treatment in the beginning stage of phthisis when it may completely eradicate the disease. Therefore it cannot be too strongly stated that the early diagnosis of phthisis is now of greater necessity than ever before. Until now the presence of the tubercle bacillus in the sputum, has been regarded more as an interesting side issue, that confirmed the diagnosis, but was of no further importance to the patient, and for that reason it is often neglected, as I have recently determined in several phthisical patients, who have been under the care of several physicians without having their sputum examined. In the future this must be different. A physician who neglects any diagnostic means and especially if he fails to examine the sputum that an early diagnoses may be made, fails in his duty to the patient, as upon this depends the early application of the specific treatment, and perhaps the life of the patient. In doubtful cases an injection for diagnostic purposes should be made.

Then only will the new curative agency become a blessing to suffering humanity, when all cases are treated in their incipiency, and we shall no longer see those severe and neglected cases, that now form such fruitful sources of infection.

In closing, let me remark that I have purposely omitted statistical tables and descriptions of special cases in this article, as the physicians who have furnished patients will themselves undertake the publication of results, therefore I wish to make this communication as objective as possible that I may not anticipate their communications.

[3] This statement requires modification in so far, that up to the present no conclusive experience can be adduced to show that the cure is lasting. It is apparent that relapses are not excluded. But we may assume that they may be overcome as rapidly and easily as the first attack.

On the other hand it may be possible that cured patients may have acquired an immunity similar to that found in analogous infectious conditions. But, for the present this must remain an open question.

[4] As regards brain, laryngeal and miliary tuberculosis, the material at our command has been too small to furnish proper experience.

CASES TREATED BY KOCH'S METHOD.[1]

PROFESSOR VON BERGMANN'S CASES.

Dr. v. Bergmann's anxiously expected address and exhibition of cases treated by Professor Koch's method took place on Sunday evening, November 16, before a numerous and select audience of invited guests. The Minister of Public Instruction, Herr von Gossler, and amongst other celebrities Professors Virchow, Gerhardt, Liebreich, Waldeyer, and Olshausen were present. In beginning his address Professor v. Bergmann referred in stirring words to the intense emotion which, since Koch's publication, had seized not only suffering but also healing humanity. He then discussed the cases that had come under his own observation, which were cases of 1, lupus, 2, glandular tuberculosis, 3, tuberculosis of the joints and bones, and 4, tuberculosis of the larynx. Five lupus patients were exhibited, to whom a subcutaneous injection of one centigram had been applied the same morning between 8:30 and 9:30 A.M.; all these five cases showed the general and local symptoms spoken of by Koch—namely, fever and inflammation. The lecturer remarked that the unerring certainty with which an attack of fever, accompanied by rigors, followed the application of the remedy, was of the highest interest from a medical point of view. This general reaction was invariably accompanied by a marked action on all tuberculous parts of the body—visible in cases of lupus. Of the patients exhibited, some showed tempera-

[1] British Medical Journal.

tures of 41.0° C., and even higher. The lupus spots were enormously swollen and very red, this reaction being the more marked in proportion as the case was a more recent one. One of the patients had suffered from the disease for twenty years and one for twenty-nine years. On Sunday morning, before the subcutaneous injection was made, Professor Gerhardt had designated the first of these cases as a slight and superficial one; nevertheless, an enormous reaction followed the injection, tending to prove that there was more lupus than had yet been found, and that Koch's remedy finds out the most secret places and nests of tubercle bacilli.

The next five patients exhibited were treated in presence of the assembly by Stabsarzt Dr. Pfuhl, subcutaneous injections in varying doses being applied to the back. One of the patients was a sickly looking lad of 17, who had been under Professor v. Bergmann's and the late Professor Volkmann's treatment for the last fourteen years. "Now the poor fellow will have relief at last," said Professor v. Bergmann, smiling.

The next set of three patients exhibited had been under treatment for some time, and had gone through a course of subcutaneous injections, the reactions becoming weaker after each injection. Here partial cure was already visible; but the application will be continued until no reaction at all can be observed.

Professor v. Bergmann resumed his address by remarking that the value of the remedy was enhanced by the control experiments that could be made in the case of healthy subjects, or those affected by other diseases, which were all-important for diagnosis. He illustrated this by exhibiting a patient suffering from an affection of the cheek, which might have been considered tuberculous. The experimental subcutaneous injection produced no feverish reaction. Probably this case was syphilitic.

The second group exhibited contained two cases of glandular tubercle, in the person of two little girls of scrofulous appearance. Here the reaction was marked.

The third group comprised sixteen cases of tubercle of the joints and bones, with suppuration, fistulæ, and similar phenomena. Some of these, to whom a first injection had been applied, showed the usual symptoms: the joints were much swollen and highly colored, and movement was scarcely possible. Others had been treated by repeated injections. One of these, who suffered from consumption and tuberculous inflammation of the knee-joint, was so severely affected by the injections (intermittent pulse, faintness, etc.), that there seemed cause for anxiety. He had, however, recovered, and was progressing favorably.

The last patients exhibited excited special interest, as they were cases of tubercle of the larynx. Professors Gerhardt and von Ziemssen had in both cases found serious lesions of the larynx. And here the remedy showed its diagnostic value as a means of distinguishing cancer from tuberculosis.

In summing up the cases exhibited, Professor v. Bergmann said that from the local and general phenomena which had already shown themselves the prognosis was decidedly favorable. Nevertheless, in many cases surgical operations would still be unavoidable, as abscesses and dislocations could only be cured by mechanical means. In these cases it would be of the highest importance to guard against relapse by the repetition of Koch's treatment, and thus both methods united gave the brightest prospect of success.

DR. W. LEVY'S CASES.

The *Therapeutische Monatshefte* publishes an extra supplement containing an account of cases treated by Koch's new method in Dr. Levy's clinic. The report, written by Dr. H. Feilchenfeld, Levy's assistant, is here summarized: The treatment was begun on September 22, that is, not quite two months ago. This comparatively short time has sufficed to show in what cases complete recovery may be hoped for, and where only amelioration of symptoms can be expected. No definite opinion could be formed as to the length of time necessary for perfect recovery. Feilchenfeld cites three cases of lupus, one of which is a sort of test case, and has already become celebrated in the history of the investigation. In this case the phenomena of reaction all took place in the typical form, with which Koch's paper has made the world familiar. A complete cure seemed to have been effected—it was as though the diseased tissue had been cut away with a chisel. Further subcutaneous injections, however, proved that the end of the trouble had not been reached, and that in spite of superficial cicatrization there was plenty of tuberculous tissue below awaiting destruction. Even now the patient cannot be considered cured. In a second case of lupus the general condition of the patient became much worse after each subcutaneous injection, and severe pains persisted, especially in the bones of the affected arm.

A third case of lupus is interesting, because of all cases treated in Levy's clinic it is the one furthest advanced towards recovery. In this case the subcutaneous injections no longer produce a reaction. Here too, however, Dr. Feilchenfeld speaks of "provisional cure" only, as no final verdict can be given after two months in a disease which runs its course so slowly as tuberculosis does.

In cases of tuberculosis of the bones and joints, cures were effected, that is, no reaction followed even large doses of the subcutaneous injection. The same result was obtained in cases of glandu-

lar tuberculosis. Turning to his cases of consumption, Dr. Feilchenfeld states that three patients in the first stage of phthisis were dismissed as cured, their sputum having been found free from bacilli, and the auscultatory signs having considerably decreased. Dr. Feilchenfeld, however, does not consider these two facts a complete proof of definitive cure. Bacilli may disappear from the sputum to reappear after a time.

As regards the more advanced forms of phthisis, where cavities have already formed, Dr. Feilchenfeld remarks that no complete recovery has been observed. But the general symptoms of the disease—night sweats, etc.—disappeared promptly. Even in the worst cases there was a diminution of expectoration. There was no increase of weight, even where the general condition was much improved. On the other hand, no loss of weight was observed, even in the most advanced and desperate cases.

PROFESSOR FRAENTZEL'S CASES.

At Monday's meeting of the Verein für innere Medicin, Professor Fraentzel gave an account of the cases treated in his clinic by Koch's method. He divided them into two classes: 1, those in the first stage of phthisis; 2, those in advanced stages of the disease (disintegration of tissue, cavities, etc.). In the latter group no change of condition could be observed. Two patients died during treatment; their cases were desperate from the beginning. The post-mortem examination showed no indication of the commencement of recovery. Fraentzel utters a word of warning against using large doses at the beginning of treatment in advanced cases, and cited one case in which death ensued after twenty-four hours. As regards the first group of patients—early stages of consumption—Professor Fraentzel was able to record decided improvement. Expectoration was easier and more abundant after the injection, while the cough decreased. The general condition visibly improved; the appetite became keener, the weight increased, and the night sweats disappeared. The microscopic examination of the sputum demonstrated first a decrease, and secondly, a change of the bacilli. They seemed stunted; nevertheless, their vitality was not destroyed. Fraentzel is of opinion that the treatment, even in the most successful cases, must be continued for a considerable time to guard against relapse.

PROFESSOR GERHARDT'S CASES.

In a clinical lecture given in the presence of many distinguished physicians on Tuesday, November 18, Professor Gerhardt gave an account of his experiences with Koch's remedy. He exhibited three cases specially fitted to illustrate the progress made in the diagnosis and treatment of tuberculosis. The first case was one of tuberculosis of the throat, in which various methods had been tried without effect. On Sunday, 2 milligrams of Koch's fluid were injected, and a decided reaction was observed on Monday. Considering the success which has attended a similar case in v. Bergmann's clinic, Professor Gerhardt thinks recovery very possible. The second case was in the initial stage of consumption, whilst the third patient showed an affection of the apex of the lung which aroused suspicions of tuberculosis. Tubercle bacilli had not been found, but this is no absolute proof of the non-existence of tuberculosis. Koch's fluid was injected on Sunday; no reaction ensued, which is a conclusive proof that the affection is not tuberculous. Professor Gerhardt, in conclusion, spoke some serious words of warning. He said it was absurd to imagine that Koch's treatment was of so simple a character that by subcutaneous injection consumption could be simply driven out of the body; on the contrary, in order to apply it successfully, the physician would have to use the most careful discrimination.

THE FIRST ENGLISH CASE OF LUPUS TREATED BY KOCH'S METHOD.

The following information, dated Tuesday, November 18, is forwarded to us from Berlin, by Mr. Malcolm Morris and Dr. Pringle: The patient, who is in a private room at the Royal Clinic, under the care of Professor v. Bergmann, is a man aged nearly 22, who has been under Mr. Morris's care since the beginning of 1885, when lupus of the face first developed. Previous to this he had suffered from various strumous manifestations. Since the lupus first showed itself on the nose it had appeared on the gums and palate, and had been several times operated upon with benefit. Caseous glands have also been removed on five occasions. The patient, who appeared to be in perfect general health, was first inoculated on Sunday morning, November 16, at 8:45 A.M., Professor Koch himself being present. His temperature, taken 15 minutes after inoculation, was 36° C., in eight hours it had attained its maximum of 40.15° C. At this time the patient was suffering from extreme *malaise*, headache, dyspnœa, nausea, and thirst. The changes in the parts affected by lupus were very remarkable, the local manifestation exactly corresponding to those descriptions already published. Gradual fall of temperature ensued till it reached 37.6° C., at 3 A.M., on November 17, attended by abatement of all the constitutional symptoms. The temperature again rose to 38.6° at 3 P.M., and had since gradually declined to normal. The local alterations, which demand more minute descriptions, will be communicated with the history, temperature chart, and other details regarding the case as soon as the treatment is completed.

SURGICAL RELIEF FOR BILIARY OBSTRUCTION.

Read in the Section of Surgery and Anatomy, at the Forty-first Annual Meeting of the American Medical Association, at Nashville, Tenn., May, 1890.

BY HENRY O. MARCY, A.M., M.D., LL.D.,
OF BOSTON.

The surgery of the gall-bladder opens another and an extremely important field for operative interference. Biliary obstruction has been, from the earliest times, recognized as a cause of most severe suffering attended with the gravest dangers.

With very few exceptions, operations for its relief have been considered beyond the *pale* of surgical domain, until within a few years, and even now, although abdominal surgery is almost universally accepted as justifiable, in a multitude of varying conditions, only a very few surgeons have attempted operation upon the gall-bladder.

My own experience is limited to the following cases which, inasmuch as they illustrate a variety of conditions, are of sufficient importance to put upon record.

Case 1.—Dr. W——, aged 72, a physician of exceptional intelligence, had clearly diagnosticated repeated attacks of suffering, extending over a number of years, as due to biliary obstruction, a gall-stone. Although somewhat jaundiced, the more prominent and dangerous symptoms were caused by the continuous vomiting. The attack preceding the operation, which was performed July, 1887, was more severe than any previous one, causing imminent danger to life. Pulse rapid, temperature slightly above the normal, no food retained upon the stomach, rectal alimentation maintained for several days, emaciation pronounced. There was pain and tenderness just to the right of the median line, and upon pressure an ill-defined enlargement was felt.

Upon section, the base of the liver was easily found, and a rather small, undistended gall-bladder, intimately bound to the transverse colon by old and firm adhesions. The finger, carried in the direction of the common duct, easily detected a gall-stone of considerable size, which was dislodged and retracted into the lower portion of the gall-bladder. A prolonged attempt at separation of the adhesions was made, with considerable loss of blood from the divided tissues, which were exceptionally vascular. After consultation with Dr. Worcester, who ably assisted me in the operation, it was reluctantly determined unwise to proceed farther, and the wound was closed. Marked relief followed for a few days; the exploratory wound healed by first intention. The old symptoms, however, soon supervened, followed by death. A careful autopsy was made by Prof. Frost, of Hanover, who reported that a calculus, about the size of a walnut, was in the greatly dilated common duct, producing complete occlusion. Although the hepatic structure was not materially changed, yet the old adhesions, binding the gall-bladder to the transverse colon, were so extensive, that the post-mortem dissection was made with difficulty and, on this account, further operative measures would have been, in his judgment, unjustifiable.

Case 2.—Mrs. R——, in middle life, extremely fleshy, a patient of Dr. Cunningham of Cambridge. When seen by me in consultation, persistent vomiting had continued for several days, ushered in by extreme pain in the right hypogastrium. She was slightly jaundiced, pulse small and rapid, condition considered one of extreme danger; referable to biliary obstruction. She had had several previous attacks less severe. On section, extensive adhesions were found, binding a moderately distended gall-bladder to the surrounding parts completely overlaid, as in the previous case, by the transverse colon. With some difficulty I dislodged and retracted a biliary calculus from the common duct, but deemed it unwise to attempt its removal, because of the impossibility of freeing the gall-bladder and bringing it within the lips of the wound. Rapid recovery followed with primary union, a free flow of bile into the intestine ensued, and the patient now, at the expiration of about two years, continues well.

Case 3.—Mr. J——, formerly a sailor, aged about 45, had been under my care for some months, suffering from supposed cancer of the pylorus. He developed rather rapidly a fluctuating tumor in the region of the gall-bladder, of fist-size. Was considerably emaciated and markedly ænemic. This condition made the former diagnosis doubtful, and operative measures were advised and gladly accepted. Entered hospital October, 1887, and assisted by Drs. Holt and Nelson I made an exploratory incision. Immediately upon opening the abdomen, the cystic tumor pressed into the lips of the wound. The tumor was carefully attached to the peritoneum by a double row of continuous tendon sutures and then opened. About six ounces of a whitish, mucopurulent fluid escaped, without a seeming trace of bile. Exploration detected no trace of biliary calculi; the finger carried deeply was brought in apposition to a thickened mass in the region of the outlet of the stomach. A large double drainage-tube was inserted, about which the lips of the wound were closed. It was washed out for some days with a weak solution of sublimate; the secretion amounted to several ounces daily. Contraction slowly followed, leaving a sinus which closed only after several weeks. Marked improvement followed for a time, but death occurred some months later, and the autopsy revealed primary cancer of the stomach, with a secondary deposit studding the liver.

The cystic duct had been closed from the secondary changes which had ensued; the interesting specimen is here shown.

Case 4.—Mr. M—, aged 45, of regular habits, a healthy, hard-working man until eighteen months previous to operation, April 29, 1889. Had developed rather rapidly a well marked jaundice, with frequently returning intermittent attacks of excruciating pain followed by vomiting. Had been supposed by his physicians dying of cancer of the liver. Skin dark copper tint, emaciation not extreme. Stools light gray, urine dark brandy color. Diagnosis, occlusion of the common duct, possibly gall-stone. I was assisted in the operation by Drs. Didama and Jacobson of Syracuse, N. Y., and Dr. Nelson of Boston. Present Drs. Warner, Cunningham, and others. Liver was enlarged and very darkly colored. Gall-bladder distended, extensive adhesions to the surrounding parts. United it to the lips of the wound as in previous case and incised. Careful probing detected no evidence of stone, and it was determined that the cystic duct was occluded from an inflammatory process. Put in drainage-tube and closed the wound about it without much expectation of benefit. A free discharge followed with continued and rapid improvement. Jaundice lessened and when seen in September had entirely disappeared. The wound closed, appetite good, strength, in large measure, returned and he does light work. He continued to gain strength until March of the present year when jaundice returned with a repetition, in a minor degree, of former sufferings.

Case 5.—Mrs. P——, aged 40, has had several attacks of biliary colic of a serious character, accompanied with jaundice. The last attack preceding the operation occurred in August, 1889. Life at that time thought to have been imperilled, she has not been quite well since. Entered my private hospital. Has severe local pains, some vomiting, markedly jaundiced; dark urine; clay-colored stools. Thick abdominal wall, beneath which a considerable sized fluctuating tumor is well defined, the base of which is quite on the line with the umbilicus. Operation October 26, 1889, assisted by Drs. Clark and Nelson.

Immediately upon dividing the peritoneum, the cystic growth distended the lips of the wound. It was attached to the peritoneum by a double row of tendon sutures and incised. Ten ounces of thin, light colored bile escaped, floating out with it a gall-stone, the size of a large almond. Careful probing revealed the presence of another calculus in the common duct. All effort at dislodgment failed, and as much force as was deemed justifiable was used in the attempt to crush it, but without avail. The bladder was washed out with a sublimate solution, the stitches cut away, the wound packed with a sponge after having somewhat forcibly drawn the gall-bladder through it. Even this procedure did not enable us to seize and remove the calculus. I then divided the walls ot the duct with scissors, and everted its edges from over the roughened calculus which was even then removed with difficulty. The thickened mucous membrane of the duct and bladder was joined by a fine continuous tendon suture, and in like manner the peritoneal edges were carefully coapted, while over all a third layer of suturing with tendon, a continuous sero-serous stitch intrafolded the edges of the entire wound of the viscus measuring about four inches. The abdominal wound was closed by buried animal sutures, in the usual manner, and sealed with iodoform collodion. Free vomiting of a large amount of bile followed the recovery from ether. Rapid convalescence ensued without incident, and the patient remains vigorous and active. This rough mulberry-looking calculus, grape-size, was the offending member, weighing when dried fifty-nine grains.

A brief review of the history of the surgical measures devised for the relief of biliary obstruction is of great interest and value. Thudicum reports that Johannes Fabricius removed gall-stones from the bladder of a living subject in 1618.

Monsieur Petit of Paris first published his admirable memoir, on the diseases of the gall-bladder in 1743. I review, at considerable length, his article, found in the Memoires of the Royal Academy of Surgery,[1] since nothing more valuable, even to the present, has been published upon this interesting subject. In the first part of his contribution, he analyzes with remarkable clearness the differentiation of the varying conditions of the obstructive diseases of the biliary passages. He cites a long series of interesting cases occurring under his own observation, supplemented by a report of autopsies. He clearly defines clinical distinctions between abscess of the liver and the distention of the gall-bladder as follows. "Fluctuation in consequence of retained bile appears suddenly, in an abscess it is some length of time before it is apparent; in the one *it is suspected before it is recognized;* in the other recognized before suspected. In the one there may be doubt as to the point of fluctuation, while in the other it is known at once by the touch." He points out very clearly the dangers from operative measures which he thinks would be necessarily fatal if the contents of the gall-blader should escape into the peritoneum, and as a consequence restricts all operative measures to the class of cases where inflammatory changes have caused adhesion of the cyst to the peritoneum.

He analyzes these changes with the closest scrutiny in order to make definite, as far as possible, such conditions before operation and then states, "What I have observed should moderate the ardor of young men who desire always to cut, but should therefore an unwise timidity cause them to let pass the occasion of operation in cases

[1] Tom Premier, 1781, Page 265, 56, etc.

where they are persuaded the tumor is caused by dilation of the gall-bladder, occasioned by retention of the bile? If the observations on the first two cases show that a few of these tumors cannot be opened except at the risk of the life of the patient, those on the third case show that there are those cases which may be opened without danger." . . . "If convinced that the tumor is adherent, that the life of the patient is in peril, we should not hesitate to open the bladder, for we should not wait for nature to perform miracles. It is true she does commence, since she causes the adhesion, and opening the gall-bladder without adhesion is always fatal, but it is the duty of the skilful surgeon to observe nature and to profit thereby, to seize upon the favorable mo ment to act himself, when he sees that nature needs his aid, and that she cannot complete what she has commenced without it. If we can be assured of the adhesion, then we may open without danger the tumors which are found in these parts, and then shall we add two new operations to surgery, one, in cases where the retention of the bile is extensive and danger to life imminent, the other, lithotomy, or extraction of stones from the gall-bladder. The existence of the stone and adhesion being assured, the operation is without danger. It is in just these cases that the skillful surgeon can show his genius. We can pass the sound into the urinary bladder for determining stones in it, why not pass the sound into the gall-bladder for the same purpose, and if stones are found, why not extract them as from the urinary bladder? If we can without rashness open the gall-bladder when it is adherent, we can pass the sound without rashness, and if stones are found there, what reproach should be to him who does not dare to extract them, and what praise should be given to the surgeon who would remove them?"

Petit then gives a series of interesting illustrative cases in detail, one of which is that of a woman, 37 years old, previously vigorous, where a tumor of the gall-bladder supervened after an attack of biliary colic. This increased in size, until it extended even to the crest of the ileum, suppuration and discharge followed, with the escape of seven or eight gall-stones. Six months after, the patient came under Monsieur de la Pegroneé. At this time the discharge was abundant, of purulent character, mingled with bile. After careful probing of the fistula, he made an incision about three inches in length, extending to the middle of the right rectus muscle, which was followed by the escape of a considerable quantity of pure bile. Without difficulty a sound was carried into the gall-bladder to the depth of about four inches which he believed entered the common duct, in which location he thought a small stone was lodged and displaced. He reports the case two years later, the fistulous tract remaining through which is a free escape of healthy bile, and the patient appears to have entirely recovered her former health.

Case 11.—Observed by Monsieur Sarran. A woman, aged 64, had colic, followed by complete jaundice. A tumor appeared in the right hypochondrium which finally opened spontaneously, leaving a fistula, which, from time to time, discharged. At the time of operation the fistulous opening was at the side and a little below the umbilicus. The sound entered the fistula to some distance, beneath the muscles of the abdomen, where was felt a hard foreign body.

An incision was made upon it, and a biliary calculus four inches long by three in circumference was withdrawn. Upon the opposite side, at the left of the linea alba, was felt another mass at the depth of an inch and a half, from which was extracted a second stone by the prolongation of the first incision. Complete cure followed in about two months.

Case 12.—Reported by Monsieur Habert, Docteur de Sarbonne. A woman, having been jaundiced for a long time, with a very considerable tumor in the right hypochondrium, after a severe attack of colic accompanied with convulsions, passed by the bowel a gall-stone, weighing three and a half drachms, two inches and a half in length, one and a half in diameter, three and a half in circumference, polished at its ends in facets. The tumor diminished in size, and health was slowly reëstablished.

Petit's work was discussed by some of the leading surgeons of his time, with little resulting profit to sufferers, and in large measure was forgotten, even Richter, who published a half a century later, making no reference to it, in his monograph upon the subject. The latter made original studies upon jaundice and the causal conditions. He determined that the general pigmentation of the tissues might occur without obstruction to the free flow of bile from the gall-bladder, and also that the outflow might be entirely prevented and the jaundice-state not supervene. The more common cause, he believed, lay in a perverted action of the liver, dependent upon a derangement of the hepatic circulation. He gives, however, in symptomatic detail a case of obstruction in the common duct from a calculus which went on under his care to death, and figures the specimen, without the hint of a possible relief from surgery. As an interesting illustrative case I quote the report of the autopsy.[2]

"Mr. S., gouty diathesis, age 40. Troubled with jaundice four years. In hospital two weeks. The gall-bladder was five inches long and two broad, quite full of dark bile and contained thirty gall-stones. The ductus choledochus and the

[2] Aug. Gottlieb Richter, M.D., Prof. Med. University, Goettingen, 1793.

parts about were preternaturally distended. On cutting into the substance of the liver a very great quantity of dark brown bile issued as from a sponge, of the same nature with that which was found in the gall-bladder. There was a stone in the ductus choledochus which, on account of its uncommon size, I have caused to be engraved on the annexed plate. It weighed three ounces and five drachms. All around the stone there was fluid bile, so that this fluid had evidently passed by the stone into the duodenum. It fell into three pieces on being taken out. The external surface resembled a very firm extract of liquorice. On some places there are evident marks of smaller stones adhering to it. The thick end of the stone was in the duodenum, the most pointed was turned towards the neck of the gall-bladder." He gives another case of interest as follows: "A woman died in the hospital in the highest degree of jaundice. On inspecting her body, no gall-bladder was found, but in its place only a skinny substance of a very small size, in which no cavity could be discovered. The whole liver was full of white concretions, apparently of the nature of calcarious earth, of different sizes, from that of a cherry to that of a pea, which floated on water. . . . . Most of the concretions lay under the external membrane, some few in the substance of the liver. These probably contained the irritating matter which occasioned the jaundice."

He concludes by stating, "that real obstructions are very seldom the cause of jaundice; where they do occur, they occasion an incurable disease, for this cause neither can be discovered, or removed." . . . "If stones are sometimes the cause of the jaundice, they act probably by occasioning irritation and spasm, which stops the biliary ducts, or deranges the course of the fluids in the hepatic system, and in such cases no other medicines but sedatives are of any use."

In 1798, Richter devised a litho-triptor for crushing gall-stones, and explained how the fragments could be removed by washing. In certain cases he also advocated operative measures, by first bringing about adhesive inflammation of the gall-bladder to the abdominal wall, and making an incision, as a second operation, after sufficient time had elapsed for securing a firm union.

Morgagni[3] mentions a case where the common duct was as large as the stomach and contained calculi of different sizes.

Dufresne, in 1847, recommended the use of caustic over the dilated gall-bladder in order to cause adhesive inflammation before opening. About that date, Recamier advised the use of the trocar. Thudicum, in 1859, reviewed the entire subject carefully. He recommended abdominal section over the cyst, and the suturing of the unopened gall-bladder to the peritoneum, and after sufficient time had elapsed for a firm union, completion of the section.

Trousseau furnishes an interesting chapter upon the subject, with the report of cases, advising surgical procedure after the manner of Petit, but he emphasizes the observations of Boyer who declared that there was but two signs which indicated the adhesion of the cyst, immobility of the tumor and puffiness of the integuments. In order to insure adhesion, Trousseau advised the insertion of thirty to forty steel needles with large heads which were allowed to remain three or four days. This process is repeated three times before peritoneal adhesion is supposed to be firm. He states that internal biliary fistulæ are quite beyond our means of treatment. He dismisses the subject with the acknowledgement that little good is to be expected from treatment except opiates and sedatives.

Frerichs, in his classical treatise upon diseases of the liver, offers little of value as to treatment of biliary obstruction and states, "We must never think of evacuating the contents of the gall-bladder by means of puncture, except when the rapid increase of the tumor endangers rupture, or where symptoms of hectic consumption supervene." When there are adhesions, the operation may be had recourse to without hesitation; but when there are no adhesions, or their existence is doubtful, he precautions to secure first adhesive inflammation, as advised by Bégin and Recamier. This consisted in dividing the peritoneum and dressing the wound with charpié, in order to produce firm adhesions.

It would appear that the first case of cholecystotomy, successfully performed in modern times, was by Dr. J. S. Bobbs,[4] of Indianapolis, reported under the title, "A Case of Lithotomy of the Gall-Bladder." A woman, aged 30, tumor just inside of iliac bone, tender to pressure, diagnosis doubtful, probably ovarian. Operation June 16, 1867. Incision made between the umbilicus and pubis, omentum adherent, incision enlarged to an inch above the umbilicus on the right side, tumor five inches in length, two in diameter. Incision through the lower margin caused several small bodies, size of rifle bullets, to escape. Closed the incision of the sac by single stitch and cut the ends of the suture closely. Closed the wounds with suture and adhesive plaster. Examination of the calculi left no doubt as to their character; were of light specific gravity, and numbered between forty and fifty. The fluid was perfectly free from coloring matter. Recovery very satisfactory with no return of local trouble at the time of report, ten months after operation.

Dr. J. Marion Sims operated in Paris, April 18, 1878.[5] Patient under observation by her phy-

[3] Morgagni—Letter 37.

[4] Transactions of Indiana State Medical Society, 1868, p. 68.

[5] British Medical Journal, 1878, Vol. i, page 811.

sician since previous January. Aspirated what was supposed to be a cyst of the liver, thirty-two ounces of dark-colored fluid. She continued deeply jaundiced, clay-colored stools, scanty high-colored urine. Under antiseptic precautions, an incision was made three inches in length, upon the right side, parallel to the linea alba. Cyst wall exposed, aspirated by trocar twenty-four ounces of dark fluid. Withdrew the emptied gall-bladder quite external to wound. Enlarged the incision and removed sixty gall-stones varying in size. Stitched gall-bladder to lips of wound. Operation tedious and difficult, lasting one hour and sixteen minutes. Death occurred eight days after, and at autopsy sixteen more calculi were found remaining in the duct. Dr. Sims' report of the case is in careful detail, and to the operation he gave the name since adopted, cholecystotomy (χολζ—bile, κυστις—bladder, τομζ—incision).

To Mr. Lawson Tait, of Birmingham, however, is justly accorded the high honor of having established, upon a sure basis, operative interference upon the gall bladder. Up to date, Feb. 18, 1888,[6] he reports forty-one cases of cholecystotomy, with only two deaths, these occurring on account of malignant disease. Mr. Tait follows closely the principles first laid down by Dr. Sims. He says, "The conclusions drawn from the surgical experience of these cases, is that the entire possibilities of the treatment of gall-stone and distended gall-bladder are exhausted in Dr. Sims' original paper, and that no further extension of it seems possible."

Recently Dr. Senger reported in the *Berliner Klinischer Wochenschrift* what he calls a new operation. The gall bladder is drawn as far as possible up from the wound, and sutured to its margin. After a day or two, adhesions will have formed and it is then opened and emptied, but immediately closed. When the wound in the bladder shall have healed, the surrounding adhesions are divided and the organ returned within the abdominal cavity. The object of these measures is of course to restore their parts to their previous normal condition, deemed by him unsafe to attempt at a single operation. Langenbeck criticises the operation as untrustworthy by reason of adhesions being too recent and offering little advantage over that of biliary fistula which can usually be readily closed if it seems desirable.

Every physician of experience has met with cases of biliary obstruction from varying causes with fatal results. These conditions are much more common than might at first appear. Many interesting clinical histories are reported in the journals, too frequently followed with verification of diagnosis by post-mortem examination. In all the pathological collections, more or less interesting specimens are found in considerable number. In Dr. Jackson's catalogue of the Warren Anatomical Museum, in Boston, published in 1870, no less than sixty specimens, from as many different patients, are preserved, showing diseases of the gall-bladder and ducts; the larger number, of biliary calculi.

It was earlier believed that simple extravasation of bile into the peritoneum was fatal. Our present knowledge would teach that the bile *per se* may be absorbed by the peritoneum without causing much trouble, although wounds of the gall bladder are generally fatal because of attendant septic infection.

The most important question that arises in the discussion of the subject is, If cholecystotomy is a justifiable operation, when should it be performed?

Injuries.— Without doubt, in every case of wound or perforation of the gall-bladder, operative measures should be instituted without delay, since without surgical interference, there is little prospect of recovery.

Empyema.—Where empyema of the gall-bladder exists, there can be no doubt but that recourse should be had to operation, as early as the condition of the patient may seem to warrant. The temptation to aspirate should be resisted, since it is in itself dangerous and cannot afford permanent relief.

Cystic Dilatation.—When the gall-bladder has become cystic, in all cases, surgical interference is indicated. Aspiration may aid in diagnosis as to the character of the fluid, and possibly the detection of the calculus, but at the most, it is only palliative.

Biliary Obstruction.—Although patients do live an indefinite number of years with gall-stones, frequently dying of other diseases, the recurrent attacks of colic are exhaustive and often fatal in their complications; jaundice induces dangerous cholemia; suppuration may be incident upon the changes which supervene from the presence of foreign bodies in the gall-bladder. Long continued obstructive jaundice and the changes which have occurred in the tissues, is doubtless an unfavorable complication, since thereby the patient's vital power is greatly depreciated. In complete obstruction of the common duct, cholecystotomy may prevent death from cholemia by permitting the escape of the biliary fluids externally. It is clearly established that the nutrition of the tissues may be maintained without the mingling of the biliary secretion with the contents of the intestinal canal.

A very considerable class of cases where obstruction exists in the common duct, merit onr serious consideration, as to the means to be established for its relief. The earlier measures which we have reviewed, where only a fistulous tract was sought to be formed externally, fail in many cases of the desired result. The theoretic

[6] British Medical Journal, Feb. 18, 1888.

perfection of the operation consists in the restoration of the parts, as far as possible, to their former normal conditions. For every reason a permanent fistula has very serious objections.

When the cystic duct alone is obstructed, and no bile enters the gall-bladder, an abundant quantity of clear albuminous fluid is secreted from the mucous surface more or less changed, and this is illustrated in my case number three, where the organ contained no foreign body. If the hepatic and common ducts are unobstructed, there will remain a free flow of bile into the intestine without jaundice and the consequent changes which ensue from the liver. Where these conditions exist, with considerable cystic dilatation, there remains to the surgeon a choice of operative measures, either of opening the bladder with drainage, or of removing it altogether—cholecystectomy, as recommended and performed by Langenbeck. Dr. Smith[7] reports nine published cases of cholecystectomy where "one death only can be attributed to the operation."

Only recently Dr. Meredith[8] states that "this operation has lately been performed with success in several instances, notably by Mr. Thornton, with excellent results. After thoroughly cleansing the interior of the injured gall-bladder, the peritoneum covering its neck is cleanly incised, and the cystic duct is then freed from its connections sufficiently to allow of its being ligatured and divided. Any bleeding vessels are then tied, and the edges of the divided peritoneum are accurately united by suture over the ligatured duct, a glass drainage tube being finally inserted before closing the abdomen."

Cholecystectomy can be favorably considered only in a very limited number of cases, where the gall-bladder has undergone marked pathological changes and its duct is so altered that the functions of this viscus are not likely to be restored. When these conditions pertain, there can be little doubt but that it better be removed, in the same manner as a cystic growth in any other part of the abdomen, yet in many cases the ease of operation and resultant safety will cause suturing to the abdominal wall, with drainage, to be preferred. When excised, the entire secreting membrane of the cyst should be carefully removed from the base, and the divided edges inverted by a continuous sero-serous suture. The operation is completed by closure of the abdominal wound, usually better without drainage.

Obstruction of the Common Duct.—In a great majority of operative cases there is obstruction of the common duct, and when this occurs from a biliary calculus, methods of procedure, to be effective, must be such as to clear the passage, in order to allow a free escape of the biliary secretion into the intestinal canal.

A calculus in the gall-bladder alone rarely causes obstruction in the common duct. On this account the surgeon should not content himself in a completion of the operation without ascertaining, as far as possible, the patency of the canal into the intestine. This cannot always be easily determined. When a calculus is found in the common duct, it may often be dislodged by gentle manipulation and removed from the gall-bladder.

When it is impossible to do this, the efforts of the surgeon should be directed towards the possibility of safely crushing it *in situ* with well padded forceps after the method of Richter, revived by Mr. Tait. It must remain a matter of individual judgment, as to how much force may be applied safely in the crushing, as well as to its method of application. If it shall prove impossible to remove the fragments by irrigation, they should be made sufficiently fine to allow their easy escape through the undilated portion of the duct into the intestinal canal. If, on account of the hardness of the calculus, or the condition of the surrounding parts, it shall be deemed unwise to attempt crushing, the further division of the duct, in order to obtain access to the stone, is advised, as illustrated in Case 5 in my series above reported.

Mr. Meredith[9] recommends the following: "In dealing, however, with a small and friable sac which has been unavoidably much injured during the extraction of the calculi, the above procedure may prove exceedingly difficult, if not impossible. Under such circumstances, one of two courses may be followed, provided always the patency of the duct has been ensured. The first of these alternative measures consists in carefully suturing the opening in the gall-bladder and returning it into the abdominal cavity. This plan was first carried out, I believe, by myself in 1883, but my patient unfortunately died. The procedure has latterly, however, been successfully effected by other operators, and its adoption, in suitable instances, is fully justified, provided that means for drainage of the peritoneal cavity in the immediate neighborhood of the sutured gall-bladder be taken."

When this has been accomplished, we are enabled to assure ourselves of the remaining portion of the duct. Other calculi may be present, or inflammatory changes may have supervened which render it still impermeable. When we have ascertained that no further obstruction remains, we are then under the necessity of making at least a partial closure of the canal, since it is impossible to attach the widely divided lips of the duct and bladder to the abdominal wall. In this instance, we may close the wound in part and use drainage, as is more commonly recommended, or complete the operation as I did in Case 5. This latter method of complete closure of the

[7] Greig Smith, "Abdominal Surgery," p. 552.
[8] Lancet, April 19, 1890, "Present Position of Abdominal Surgery."
[9] Lancet, April 19, 1890.

gall-bladder was first suggested by Sir Spencer Wells, and so far as I have ascertained it has been attempted in only three instances, one of which, as reported by Mr. Tait, was followed by a fatal result, because of escape of bile into the peritoneum.

To close so long a wound effectively would seem improbable by any method of interrupted suturing. The use of silk, as the material for suturing, no matter how prepared, would be likely to result disastrously, since it produces much irritation in the wound, which would be especially true if applied in repeated layers. The coaptation of the parts, as effected in Case 5, is simple, rapid, and makes a wound at once fluid proof; a method which I have adopted for years, in all cases of intestinal suturing. When the edges of the duct and gall-bladder have been thus coapted, the operation is finished by closure of the abdominal wound *without drainage*.

So far as I have been able to ascertain, however, the attempt at incision of the duct to remove a calculus has not been made, except in Case 5, of my series. Dr. Meredith suggests excision in his recent paper.[10] "Failing of success by any of these methods, (of removing a calculus within the duct) its removal by excision, followed by careful and accurate suture of the duct might possibly be performed with success."

One of the serious, and I am constrained to believe not seldom, dangers, resulting from biliary calculi, while yet retained in the gall-bladder, results from reflexive irritation as evinced by nausea and vomiting. It is now some years since the first case of this type came under my observation, the sufferer being a physician of exceptional wisdom. His diagnosis was perfectly correct, which he desired me to ascertain in the event of his death. The calculus which I here present was free in the gall-bladder, without obstruction of the biliary, or common duct. The immediate cause of death was from hæmorrhage into the stomach, produced by continuous retching.

Some years later, a similar case came under my observation, where the diagnosis was equally clearly determined, and demonstrated by an autopsy, and where operative measures were not favorably considered by the patient and family, as well as by the consulting physician.

In cases where the common duct is permanently occluded from inflammatory or other changes, the cystic duct remaining open and the gall bladder not especially disorganized or adherent, it remains for consideration, if a permanent fistulous opening may not be effected between it and the duodenum. In a considerable number of cases on record nature has pointed out the possibility of this method by allowing to escape, through such a fistulous tract, calculi from the gall-bladder into the intestine. In a most interesting case under my observation a few years since, I urged the opening of a distended gall-bladder, since the patient was dying of extreme cholemia. The post-mortem examination showed a non-malignant, inflammatory, complete closure of the common duct.

Winiwater successfully established a communication between the gall-bladder and the transverse colon. However, in this situation, the physiological effects of the biliary secretion are lost. Dr. Gaston, [11] of Atlanta, Ga., reports a series of experiments upon dogs where he established a permanent communication between the duodenum and the gall bladder. Winiwater advocates a modification of his operation, by selecting some portion of the small intestine which can be brought most conveniently into apposition with the gall-bladder, since the duodenum is not sufficiently movable to be adjusted.

These are sutured by the peritoneal surfaces only, and after five or six days adhesions should have been formed sufficiently strong to admit of a permanent opening being made. Although such an operation, as far as I know, has not been attempted upon the human subject, conditions may arise in which it should be taken into serious consideration.

The technique of the operation in cholecystotomy is comparatively simple. Incision may be in varying direction. Mr. Tait advocates the division parallel to the median line, just external to the rectus muscle. In my own cases, the parietal incision has been made parallel to the ribs. After having opened the abdominal cavity, the gall-bladder is examined by the finger. If the tumor is very large, its contents may at once be evacuated with an ordinary trocar. Oftentimes the walls of the greatly distended gall bladder are very thin. In such instances it may be wise to make use of a small aspirating needle, instead of the trocar. The puncture should be made in the most dependant portion of the tumor. The abdominal cavity must be carefully protected by aseptic sponges to prevent the escape of any of the fluid into it. It may be a wise precaution, which I adopted in Cases 3 and 5, to unite the edges of the peritoneum to the gall-bladder carefully, by a running suture, prior to opening it. If the tumor is not very large, and the emptying of its contents with drainage is all that is required, suturing in this manner before opening is to be generally advised. It is easier effected with the gall-bladder tense, and gives more accurate coaptation than can be secured by uniting the gall-bladder when flaccid and empty.

The incision is now made into the gall-bladder sufficiently large to admit the finger and an examination of the contents is carefully made. Calculi may be removed by forceps, or scoop, care being exercised not to injure the delicate struc-

[10] Lancet, April 19, 1890.

[11] Atlanta Med. and Surg. Journal, September and October, 1882.

tures. If a stone is impacted in the neck of the gall-bladder, or the cystic duct, its removal will be attended with exceptional difficulty. The right fore-finger within the abdominal cavity may aid in its dislodgment, assisted by gentle procedure of operative measures, from within the duct. This failing, crushing by forceps carefully padded, or protected by rubber may be attempted. After crushing, the fragments should be removed through the wound if possible. If crushing proves impracticable, division of the parts, until the stone is reached, should be made, followed by closure, as already described.

If, as may be found expedient in a great majority of cases, a fistulous opening is determined upon, a soft rubber drainage-tube should be inserted, and the wound dressed with absorbent material. I have used with advantage a soft-rubber double drainage-tube, inserted into a diaphragm about the size of a half dollar. These have been especially made for me in one piece.

If the common duct is patent, the fistula will voluntarily close in a few weeks. It has been used, as an argument in favor of suturing and drainage, that adhesions are formed which would render easy the division, in the line of the old cicatrix, in case of subsequent obstruction, a contingency worthy of consideration.

Cholecystotomy may be accepted as an operation already established, worthy of adoption by the surgical profession. Present experience abundantly warrants this conclusion. More brilliant triumphs await its future development, when operative interference will be advised much earlier than at present. The more serious complications which render the operation especially difficult arise from previous inflammatory attacks with their resultant pathological changes.

In the *American Journal of the Medical Sciences*, for October, 1884, Drs. Musser and Keen tabulate all the hitherto recorded cases of cholecystotomy. They number thirty-five, by sixteen different operators, with ten deaths. Three fatal cases from hæmorrhage, one from peritonitis, the remaining cases death probably due to the previous condition of the patient. Since 1884, the histories of about one hundred cases of cholecystotomy, have been published by more than one-third as many different operators. It is safe to predict that the future history of operative measures, for the relief of biliary obstruction, will furnish one of the most brilliant chapters in surgery.

One of the most serious of all the abdominal diseases, as evinced by acute pain, prolonged suffering, and great mortality, confessedly without remedy from medicine, cholecystotomy offers help to the hopeless with an attendant danger in the hands of the experienced surgeon, of as small a percentage as in ovariotomy. By present demonstration, the closure of intestinal wounds by suture, or even resection, is to be preferred over an artificial anus. If operations upon the gall-bladder are undertaken, at a time when the organ itself is not materially changed, remaining free from adhesions to the surrounding parts, it would seem a safe conclusion that an opening, made into this viscus, should be closed with as great safety and as good reason as in that of the intestinal canal. If attempted, it should be completed with as much care and exactitude as in the latter instance.

It has been clearly shown that an *aseptic animal suture* is not only far safer when properly applied than silk, but that it also possesses the great advantage of causing an abundant proliferation of connective tissue along the tract of the buried suture. It may also be safely applied in repeated layers in order to coapt broad surfaces, in a manner unsafe to attempt with silk. After a considerable period it disappears to be replaced by vitalized tissue. Such a suture, itself *aseptic*, *aseptically* applied, in an *aseptic wound*, furnishes an important aid in dealing safely with wounds of the gall-bladder. There can be no doubt but that its proper use adds another factor of the highest importance in aseptic surgery, adding much to the safety and subsequent resulting good.

We cannot but believe that the animal suture, especially that from the tendon, properly preserved and prepared, furnishes the surgeon with an aid of the highest importance. By means of its use, the tissues in nearly all the varieties of operative wounds, can at once be coapted and retained in position without further disturbance.

COMPARATIVE VALUE OF MERCURY AND THE IODIDES IN TREATMENT OF SYPHILIS.

Read in the Section of Dermatology and Syphilology, at the Forty-first Annual Meeting of the American Medical Association, at Nashville, Tenn., May, 1890.

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"However long mercury has been employed as an antisyphilitic, general assent has not yet been gained by any doctrine concerning the utility of its administration, the results which it may produce in syphilitic patients, the period at which its administration should be begun and how long it is to be continued." So wrote Zeissl.

Burenspring says that mercury exercises a curative action on all syphilitic lesions and that it rapidly causes disappearance of the symptoms. He also says the further development of the process is not prevented by mercury: that the disease

is simply protracted, and that by reason of this, tertiary forms develop and the disease becomes incurable. He also says: "Tertiary syphilis is not mercurialism, it is always syphilis, but modified; syphilis in a system changed by mercury." He says further, that "whatever treatment is adopted, syphilis is a disease which impairs profoundly the entire organism. Cases of rapid recovery are rare. Gradual extinction of the disease is the rule, and may happen after mercurial as well as non-mercurial treatment. The advantage of mercurial treatment is that it rapidly ameliorates the symptoms of the disease and effects their recovery, but this is more than counterbalanced by a double disadvantage. Inasmuch as it impairs the entire constitution, it favors the development of destructive local forms; making the disease latent, often for months and years, and delays definite recovery. Non-mercurial treatment is often unable to prevent the severe and extensive appearance of the symptoms, particularly at the beginning of the disease, but it offers the great advantage that it never conceals the disease when it is not cured, and accelerates its definitive recovery."

Diday says, "From 1838 to 1860 I systematically dispensed with the use of mercury during the existence of the primary lesion and the first appearance of the secondary symptoms. I used mercury only in exceptional cases, when the nature of the symptoms imperatively demanded it." Finally, since 1860 he has used what is really a mixed treatment. He gives mercury occasionally—where it is needed, and says mercury is unable to destroy the virus of syphilis; and divides his treatment into "opportunist method" and "regular method." By the former he means an effort to assist nature in her constant fight against the intruder. In experimenting on patients afflicted with syphilis he found that those to whom he gave mercury in the primary stage had the secondary manifestations of the disease in forty-three days, the period of secondary incubation was that long; while those who did not use mercury during this period had the secondary manifestations in forty-nine days. And he says that both classes of patients suffered from relapses in exactly the same manner and the same proportion.

H. Zeissl, believing that mercury did not cure syphilis, divided his hospital patients into three classes—those to whom he gave mercury on the first appearance of the secondary eruptions, those to whom iodine was given and those to whom *nothing* was given. He noted that those patients to whom he gave inunctions of mercury frequently were relieved of the manifestations of the disease in ten to ourteen days. Again, those to whom he gave iodine were relieved in from fourteen days to four to eight weeks; and, lastly, that those patients to whom he gave *nothing* had the eruptions disappear completely in four weeks in some cases, while in others they lasted several months.

Here we have the natural history of syphilis before us. Indeed, we might have expected as much from the fact that syphilis has been treated successfully by almost all the remedies of the pharmacopœa, and from time to time advocates of sarsaparilla, stillinger, burdock, poke roots, berberis aquafolium, cundurango, manaco, hunger cures, purging cures, water cures, etc., have brought them prominently before the profession. Each would have its day; recently the majority of the profession have about discarded all of them and confined themselves to the two "old reliables," mercury and iodine.

H. Zeissl claimed "that the severe gummy syphilides appeared much earlier after the mercurial treatment than after either the iodine or expectant plan, and that relapses are much more frequent and obstinate after the mercurial treatment than after the expectant plan."

He also says that those patients may be counted as cured who, after the disappearance of the earlier eruptions without treatment, have no relapse within one year; that one year's freedom from syphilitic eruptions after the disappearance of the first secondary manifestations, said disappearance being brought about by the expectant plan of treatment—that those patients have been cured. He further says that it is only when the iodine and expectant methods have failed that mercury should be used. He also says the expectant plan takes longer to cure the symptoms, but that the relapses are less frequent than after the mercurial treatment. That treatment with the iodides is next in efficiency *after* the expectant plan, and that when the symptoms do not yield to either the expectant plan or the iodide treatment, then a small quantity of mercury causes them to rapidly disappear.

Sigmund holds almost the same views, though he has been a most pronounced advocated of mercurial treatment. He says that "science and experience positively favor the view that the proper time for general antisyphilitic treatment is in the second stage of the syphilitic development, and that at this period it should be begun *only* if important organs and systems are involved, or if the nutrition and vigor of the organism suffer seriously. In affections of mild grade and in certain organs, suitable local treatment will suffice even during the second period of the disease" He regards iodine of great value even in the second manifestations of the disease.

E. Finger, of Vienna, agrees with H. Zeissl, and gives iodine in preference to mercury in the condylomatous stage.

Kaposi says: "The more vigorous and persistent the treatment during the first acute stage, the more certainly relapses and a protracted

course of the disease are prevented." He believes in the vigorous use of inunctions of mercurial ointment.

Fournier advocates the vigorous mercurial course of treatment continuing over a period of one to three years, mercury for a few weeks or months followed by a period of rest on the "expectant plan."

M. Neisser follows Fournier's plan of treatment and says "the treatment should be chronic." He gives one "main cure," as he calls it, by inunctions, ond follows it by internal administration of some of the milder forms of mercury. His "main cure" is repeated once a year for three years, but he also "attributes unusually severe symptoms to an excessive use of mercury."

Caspary says "the use of mercury is not a matter of indifference;" advises its use during the stage of eruption, but does not advocate its administration during the period of quiescence. He also says, "Vigorous treatment after the manner of Fournier, in the early stages of the disease, delays relapses—but that the relapses are very apt to be severe."

Unna is opposed to the protracted use of mercury in syphilis, and lays all the late manifestations of the disease to unoxidized mercury in the tissues. He also says that some cases of cerebral syphilis in which the patients have difficulty in walking, seem to get worse under administrations of mercury.

Rumpt says, "There are isolated cases of cerebral syphilis in which mercury seems to exert an injurious influence. In a few cases of cerebral syphilis with mild delirium, use of mercury was followed by coma which yielded to the use of iodides" . . . . This I can corroborate from personal experience this last year. A medical man consulted me for what was evidently cerebral syphilis. Under mercurial inunctions his cerebral symptoms got worse, and improved when the mercury was stopped and iodine given.

A gentleman from Texas also came to me with cerebral syphilis. Had had an attack of cerebral apoplexy due to syphilitic disease of the arteries. Under use of mercury he got worse, and I was compelled to stop its use and place him on the iodides alone.

M. Zeissl reports several cases in which he had used vigorous mercurial inunctions and in which severe relapses of syphilis follow[ed]; so that now he does not give mercury until he has failed after a ten weeks' trial with iodine, commencing the administration of the iodides only after the secondary eruptions have existed for six to eight weeks. Then, if the iodides fail him, he resorts to mercury, agreeing with the opinion of H. Zeissl, "that it is not the mercury that hurts the patient, but mercury given at improper times." He says that now he continues the iodine course for six months, or at most a year, after the syphilis has disappeared. If relapses occur he again resorts to the iodides—and if the symptoms disappear very slowly, or not at all, then he uses mercury.

In contrast with this opinion of M. Zeissl and others, Otis advises the commencement of mercury as soon as the chancre indurates, and urges its protracted and vigorous use. He reports some cases in which the use of the drug was not pushed as vigorously or as early as he thought it ought to have been, where grave tertiary lesions resulted.

Van Buren and Keyes advise the use of mercurial treatment as soon as the diagnosis is made, and urge this as the safest plan for the patient, increasing the mercurial up to point of tolerance then dividing the dose in half, and continuing the smaller dose for a period of one year or more.

My own plan has been to give mercury when the secondary manifestations of the disease appear, and to continue it after the eruption has disappeared for a period of six months, then the so-called mixed treatment for six months, and follow this by a six or twelve months' course of iodides alone. But the longer I live and the more I see of syphilis, the more I am inclined to give iodides, giving mercury when the iodides fail to relieve the case. In all the later manifestations of the disease I use only the iodides.

So we have here syphilographers divided into two groups: one favoring and urging the administration of mercury as soon as a diagnosis is made, and continuing the use of that remedy for long periods of time; the other giving it only when the manifestations of the disease do not yield to the iodides—and then giving it only until the disappearance of the eruptions. The one group laying many of the grave lesions of of the later period of syphilis to the fact that mercury was improperly given, both as to time and quantity—the other claiming that these appearances of the disease were due to the fact that not enough mercury was given, or that it was not given in sufficient quantity or not protracted over a sufficiently long period of time.

My own opinion is that they are supplementary one to the other. As I have said before, some of the graver lesions of syphilis seem to get worse under the administration of mercury, and yield rapidly to the iodides. Of course, all of us have seen patients who could not bear the mercurial treatment. Again, there are others in whom the mildest iodine course is followed by very grave symptoms.

In using mercury for syphilis I prefer the ung. hyd. I have found in a very large experience that it produces its effects very promptly, and that it is less liable to disagree with the digestive apparatus than any of the salts of mercury administered internally. In ordering the mercurial I use 1 drachm of the 50 per cent. hyd. ung. rubbed into the skin every night, of course carefully

watching its effects, for on the slightest evidence of salivation it must be lowered in quantity or discontinued altogether; occasionally I find a patient who is very greatly depressed by this quantity. In that case I lessen the dose by half and continue it until the manifestations of the disease have disappeared. Of course this is an inconvenient mode of administration of the remedy, in persons whose occupations take them from home a great deal of the time, and who have not the facilities for warm baths. For this class of patients I order the protoiodide of mercury in ¼ gr. doses, and prefer the gelatine coated pills to those which are sugar coated. In giving the iodides for syphilis one thing is important to bear in mind, and that is, that the dose of 3 to 10 grs. is all a mistake. I commence its administration with 15 grs. and increase it 1 gr. a day until the manifestation which called for it has disappeared, and occasionally I have carried the dose up to 1,000 grs. a day.

Practically speaking, the point I wish to impress upon this body is, that there is no limit to the dose of the iodide save that which is indicated by its effects.

One of the most convenient modes of administering it is in the form of saturated solution: here 1 minim represents 1 gr. of the salt. Of course this should be largely diluted with water before it is given. For the grave forms of nervous syphilis I never give the smaller dose, but at once commence its administration in 50 gr. doses, and have had no reason to regret such a course. The same plan is pursued when a gummy deposit exists in the pharynx and nasal or post-nasal cavity. In both these classes of cases we desire to produce a rapid absorption of the gummy deposit, and so prevent its breaking down, thus protecting the patient from the horrors of such softening.

REFERENCES.

Van Buren and Keyes.
M. Zeissl.
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MEDICAL PROGRESS.

GENERAL SHRINKING OF THE AORTA A CAUSE OF HEART DISEASE.—Under the above title DR. A. SCHABERT (*St. Petersburger Med. Wochenschr.*) describes a case and gives an extensive *résumé* of the literature of the subject. He refers to the old case reported by Joh. Fr. Meckel in 1750. The patient, a girl 18 years of age, had complained from early life of palpitation, with anxiety and severe pain—like angina pectoris. *Sectio cadaveris* showed an enormously enlarged heart that nearly filled the left half of the thorax, a very small aorta with a diameter less than one-half that of the pulmonary artery. This interesting specimen is still to be seen in the museum in Halle. In 1765 Morgagni described several similar cases, also Andral (1836), Bouilland (1837), and King (1840).

Insufficiency of the aorta generally presents the clinical picture of dilatation of the heart, that cannot be referred to other causes; it affects young persons and causes death with symptoms of asphyxia. A later condition is that of hypertrophy, and when this has reached a degree that will overcome the increased resistance presented by the aorta, then the patient may be comfortable for a time. A third group of these cases belong to those in which the mitral valve is involved as a secondary condition. From a diagnostic point of view the case of Riegel is exceedingly interesting. The patient, a man 29 years of age, complained for years of palpitation, which later ceased. He was always employed at severe manual labor, had never had rheumatism. Later dyspnœa increased and dropsy presented itself. Presented on examination the following conditions: Medium sized man, well-nourished, with marked dyspnœa (36 to 40 per minute). Dilatation of the heart, to the left of the nipple, and to the right past the sternal border. Dulness in the second intercostal space, in which a systolic murmur could be heard, that is loudest just over the pulmonary valves, and is conducted along the vertebræ. Small and hard pulse, the right constantly smaller than the left. Liver enlarged. Œdema of the lower extremities. Urine high-colored, but free from albumen. Left recurrent laryngeal nerve paralyzed, left vocal cord in "cadaver position." Lung infarct.

The dulness, and systolic murmur in the second intercostal space, enlargement of the heart, recurrent paralysis, and difference in the radial pulse, led to the diagnosis of aneurism of the aorta. The post-mortem examination revealed a very different condition. The aorta was found to be greatly contracted, and the physical signs were due to the following conditions: The dulness was not caused by the aorta, but by dilatation of the right auricle. The systolic murmur was caused by pressure of the pulmonary artery upon the aorta. Recurrent paralysis was caused by pressure of the enlarged pulmonary artery upon the nerve. Unevenness of the pulse was simply an accidental condition.

The author's patient presented nearly similar symptoms. Six days before coming to the hospital complained of severe pain in the left breast, anxiety, hurried breathing, increased area of heart dulness that extended as high as the second intercostal space to the right border of the sternum. A few days' residence in the hospital improved the patient so much that he insisted upon returning to his home. About three months later he

presented himself with an increased area of heart dulness, and an apex systolic murmur. The liver was enlarged, extending two and one-half finger widths below the umbilicus, the pulse became irregular, and after about one month the patient died and was sent to the autopsy room with a diagnosis of pericarditis and mitral insufficiency. Post-mortem examination revealed an enlarged heart and a very small aorta, the latter presenting just above the valves a circumference of only 4.3 ctm. Considerable serum was found in the pleural, peritoneal and pericardial sacs. "Nutmeg" liver and congested spleen.

The writer attributes the fatal issue in this case to the advent of the pericarditis, that seriously impaired the nutrition of the heart muscle.

DIAGNOSIS OF ABSCESS OF THE LIVER.—PROF. P. K. PEL, of Amsterdam (*Berlin. Klin. Wochenschr.*) closes a brief article on the above subject with the following sentences: The objective symptoms of this condition are chronic hectic fever; enlargement of the affected organ is a constant sign, which is generally characteristic in that the right lobe enlarges upward. The line of liver dulness is dislocated upward, and instead of being horizontal is curved, with the convexity upward. The line of dulness does not change, as in normal conditions, by deep inspiration, or by lying upon the left side.

Subjective symptoms are pain in the hepatic region, which radiates backward, psychical depression, anorexia and sleeplessness.

Etiological considerations have an important bearing upon diagnosis, such as, tropical dysentery, residence in the tropics, gall-stones, inflammations in the territory of the portal veins, abdominal typhus, echinococcus, trauma, etc. It is, however, to be remembered that in many extra-tropical cases the etiology is very obscure.

The author closes with the statement that there are abscesses of small size centrally located, that do not present a distinct clinical picture, and in which an absolute diagnosis is impossible.

TREATMENT OF FACIAL ERYSIPELAS.—By DR. LEHNRBECHER (*Münch. Med. Wochenschrift*, September 16, 1890).—Our ideas about erysipelas have been altered by recent bacteriological study and the discovery of the streptococcus erysipelatis. Formerly surgical erysipelas was separated from the spontaneous exanthematous erysipelas. In 1889 Trousseau definitely stated that both forms had a local starting-point; and previously, in 1849, Zuccarini showed, as Gerhardt had pointed out, that in fatal cases of typhoid, complicated by exanthematous erysipelas, purulent collections and degradation products were present in the cavities about the face, and that the so-called exanthematous erysipelas was due to decomposition products resulting from suppuration and ulcers being taken up into the tissues and lymph vessels.

Out of eighty cases occurring in three years, seventy-four had facial erysipelas and forty-seven of these had some chronic inflammation about the nasal mucous membranes, or cracks, crusts, and ulcers there. Zulzer, in a recent monograph, in which treatment is exhaustively stated, does not lay any special stress on the treatment of the nose.

It is well known how numerous are the local remedies which are supposed to limit the disease, yet it is admitted that none of them attain their object. Neumann and Gerber paid more attention to the starting point of erysipelas, and Kaposi most of all. He says the nasal cavities must be inspected, pustules opened, and crusts removed, by tampons of oil.

It appears to the author of every importance that in cases of erysipelas starting from the nose gentle irrigation should be used with a 3 per cent. solution of boracic acid. It is astonishing what masses, etc., may be removed in this way. Collection of pus, etc., in the nose are easily explained, when one remembers the large space there is, filled with crevices, and also the cavities which communicate with the nose. These are often affected with catarrh extending over long periods. The air drawn into them dries the secretion and sets up decomposition in virtue of the microbes with which it is laden.

When the nasal cavities have been cleaned by the irrigation, tampons of boracic ointment made up with vaseline may be applied. With the removal of the exciting cause, the local treatment of erysipelas may be limited to the covering up of the inflamed surface with wool or oil compresses.

TROPHIC DISTURBANCES.—M. MORVAN always contested the view that the malady which bears his name was identical with syringomyelia, but abundant clinical observations have demonstrated that the two conditions are closely allied. He based the distinction upon a study of the sensibility; in the *maladie de morvan*, tactile sensibility is affected at the same time as that of pain and temperature. The authors who admit with Roth the identity of Morvan'sdisease and syringomyelia, maintain that in the former sensory troubles are usually not marked or absent, while in syringomyelia they are never absent. Thus far the clinical observations nor the post-mortem examination of Gombault and Reboul have not settled the question of the medullary changes in these diseases, therefore the following observation of Joffroy and Achard (*Arch. de Med. Exper. Annales de Der. et de Syphil.*) fill an important lacuna in the pathology of these affections.

A woman seventy-five years of age, had before the age of thirty an affection of all the fingers with the exception of the right thumb and the

little finger of the left hand, that persisted for two months, but disappeared after the elimination of some osseous fragments, leaving the characteristic deformity. The integument was not thickened. Tactile and temperature sense diminished on both palmar and dorsal surfaces, as well as on the lower two-thirds of the forearm. Muscular atrophy pronounced, but no signs of kyphosis or scoliosis. Autopsy revealed the spinal cord greatly diminished in volume, with irregular cavities, distributed through the cervical region, especially affecting the anterior and posterior grey cornua. Sclerosis of the posterior columns reaching the medulla. In the dorsal region round nodular masses of neuroglia centrally situated, displacing the central canal. Diffuse sclerosis in the white substance. Some changes were noted in the peripheral nerves of the upper extremities, and at some points atrophy of the fibres with Wallerian degeneration.

In the above case we find associated the peculiar symptom complex of Morvan with the anatomical changes peculiar to syringomyelia. It is, however, to be remembered that the symptoms of central nerve lesions are determined more by their location than by the peculiar pathological changes in the tissues.

THIOL IN SKIN DISEASES.—In April of the current year PROF. SCHWIMMER (*Therap. Mon. Hefte*) published his results in treating skin affections with the patented thiol. The drug was used in watery solution, one part to three, or in the form of salve, one part to ten. The writer especially recommended the drug in dermatitis herpetiformis, less warmly in acne vulgaris and acne rosacea, as well as eczema. Thiol in general has a similar action to that of ichthyol, and its therapeutic indications are much the same. It presents some advantage over the former in that the skin and linen are not stained so freely.

Schwimmer, in a recent number of the *Wien. Med. Wochenschr.*, affirms his earlier experience with the drug, and claims that it is especially indicated in those cases where a drying and astringent effect is desired.

TREATMENT OF DIABETES.—At the Congress of Berlin DR. DUJARDIN-BEAUMETZ read a paper on the treatment of diabetes which presents some points not altogether new, but which are apt to escape notice unless recalled to our attention: Prognosis in the disease can only be founded, he considers, on the results of rigid dieting; that is, it is not the relative weight of the sugar excreted in twenty-four hours which makes a case the graver or the more hopeful, but the less or greater diminution which the prescribed regimen can effect. As for the question of its curability, that can only be answered with the utmost reserve. There are cases wherein the sugar has absolutely disappeared under its total exclusion from the food of the patient, but in which the tendency to excrete it is as great as ever.

It is interesting to see what enormous quantities of sugar can be given to healthy people without a trace appearing in the urine; and, on the other hand, to know that we cannot increase the amount excreted by a diabetic beyond the point naturally reached under an unrestricted diet. The exclusion of sugar and saccharogens from the food, all the world knows, is the main point in treatment, but the difficulty is to do it and yet not render existence too intolerable to the patient; and bread seems to be, in an inverted sense, *la pièce de résistance*, the *crux* in diabetic bromatologia. There are various more or less unsatisfactory substitutes, gluten bread *and* gluten bread, some with so much starch in it that the gluten is a vanishing point. There are almond-meal cakes, proposed by Segeen (or Pavy?) and sorgum bread, but the former is so nice that one soon gets tired of it, and the latter is so disagreeable that few care to commence with it. Then, there is *fromentina* and *legumina*, made from the embryos of wheat and beans—they say—there is little starch, much albumen therein.

But all have the same defect; like bran itself, which is sometimes used, they are but chaff and draff, at a monstrous price and the minimum of satisfaction if really what they profess to be, and just as starchy as bread itself, we may be quite sure, if diabetics like them. Dr. Dujardin-Beaumetz was the first to suggest, "then give starch, but as little as possible." Let the daily allowance be a single potato weighing about a quarter of a pound, well boiled, and eaten with plenty of butter. Else order the crust of bread: there is somewhat more starch in it than in an equal weight of the crust, but then, one cannot eat so much of it, and the bad and tender teeth of diabetics make even that little go a very long way.

Again, they must not be allowed to eat any fruit; its glucose is the very form of sugar we wish to avoid. Then their beverages: for they are necessarily thirsty souls. Unless there be coexistent albuminuria—when we must choose the least of two evils—give no milk, it always augments the sugar. Of alcohol they can take extraordinary quantities without getting tipsy, because so much of it is at once swept out by the kidneys, but not without damage to those important organs. Therefore, proscribe spirits, liqueurs and strong wines altogether, and only permit weak wine-and-water. Light beer may be given, no stout nor porter, and extract of malt is, of course, forbidden.

Tea, coffee, cocoa, matè and kola are not only valuable as affording unobjectionable beverages, but they give the nerve stimulus diabetics so often need; and since the discovery of saccharine they can be made safely palatable, also, without

the use of glycerine, which often did harm by irritating the bowels. Another point is gymnastics. When the disease was looked upon as an exaggeration of the functions of organic life, complete repose seemed called for; but this is surely a mistake, and, short of fatigue, the patient should have abundant exercise. Nor should hydropathy be neglected; it is often of the greatest value, and holds a place between dieting and medication. As for the action of alkaline mineral waters, it is probably not so much upon the liver as in the general nutrition of the body that they are beneficially exhibited; and when combined with arsenic, as Martineau suggested, and with the addition of lithia, we have probably the best treatment yet known to us. Direct the patient to take before each meal—

Carbonate of lithia, 5 grs.
Fowler's solution, 2 drops.

in a glass of effervescing alkaline water.

But pharmacy has recently done more than this for us: the discovery of bodies which act electively upon the axis of the spinal cord, as quinine and bromide of potassium do, are of great value in diabetes, but above all antipyrin, which affects the thermogenic centres. The author has shown that this latter remedy diminishes both the polyuria and the percentage of sugar. In *diabetes insipidus* it acts extremely well, only one must take care not to confound the excessive passage of watery urine, due to renal insufficiency, with this disease. And in interstitial nephritis antipyrin only does harm. In suitable cases the dose is ½ to 1 drachm a day. And we must not keep up the rigor of the treatment too long; human nature is weak, and monotony itself weakens the constitution; after a time give a larger potato, a slice of bread, a lump of sugar as a relaxation.—*Provincial Med. Journal.*

STARVATION AND LIABILITY TO INFECTIOUS DISEASE.—CANALIS and MORPURGO (*Oesterr-ungar. Centralbl. f. d. Med. Wissenschaften*, No. 27, October, 1890) have recently made observations on this subject. Their experiments were made with the anthrax bacillus, the animals chosen being those most resistant to this disease, namely, pigeons, hens, and rats. Most observers have regarded pigeons as very sensitive to the anthrax poison. Canalis and Morpurgo find, on the contrary, that they show great resistance, for, out of 12 pigeons inoculated with anthrax only 2 died, one on the fourth and the other on the seventh day after inoculation. They sum up their results as follows: 1. Animals previously immune can be rendered sensitive to infectious disease by withholding food for a period. 2. In the case of pigeons, immunity against anthrax is completely lost if from the time of inoculation all food is withheld. 3. On the other hand, pigeons starved for six days before inoculation can be rendered immune against anthrax if again fed subsequent to inoculation. 4. This is not the case if subsequent to inoculation they are starved for a further period of two days before they are again fed. The disease in this case, however, runs a longer course. 5. Well-nourished pigeons inoculated with anthrax virus take the disease, if even eight days later food is entirely withheld. 6. This would seem to indicate that the anthrax bacillus is capable of maintaining its vitality for at least several days after subcutaneous injection, and then producing this disease. 7. This increased sensitiveness towards anthrax, as the result of starvation, cannot be ascribed to the fall in the temperature which ensues, since a similar fall of temperature artificially produced in well-nourished pigeons does not deprive them of the immunity they previously possessed. 8. Hens also can, to a certain extent, be rendered sensitive to anthrax by starvation. 9. The great majority of them succumb to the disease if previously to inoculation they have been starved from three to seven days. 10. Rats—at least, the white variety used by Canalis and Morpurgo—retained their immunity against the disease, even if starved for a long period.—*Brit. Med. Journal.*

CAMPHORATED SALOL IN MIDDLE EAR SUPPURATION.—Numerous non-irritating antiseptics have been lauded of late in the treatment of middle ear suppurations. Peroxide of hydrogen and boric acid have stood at the head. CUVILLIER (*Revue de Laryngologie*) has taken advantage of the power which camphor possesses of forming a liquid when brought in contact with certain substances belonging to the phenol group, to give us a new antiseptic, which he says is unirritating—certainly a *sine qua non* in the treatment of middle ear disease. He uses the following method: The meatus is carefully cleansed with a 5 per cent. solution of boric acid, and a small wool tampon saturated with camphorated salol is carried into the canal and an external antiseptic dressing applied. This should not be allowed to remain more than twenty-four hours.

NUMBER OF NERVE FIBRES IN THE OCULO-MOTOR NERVE OF THE NEWBORN AND ADULT.—SCHILLER (*Comp. Rend. d. Sci. Medical*) has recently made some observations upon the number of nerve fibres found in a cross section of the oculo-motor nerve in a newborn cat and those of an adult. The research was undertaken with a view of ascertaining if an increase took place in the number of cellular elements as age and growth advanced. The results showed that the number of fibres remained about the same, the apparent increase in the size of the nerve trunk being due to an hypertrophy of the individual elements. In adults the nerve fibre is from three to six times the size which it has in the newborn.

THE
Journal of the American Medical Association
PUBLISHED WEEKLY.

SUBSCRIPTION PRICE, INCLUDING POSTAGE.
PER ANNUM, IN ADVANCE.....$5.00
SINGLE COPIES.....10 CENTS.

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Address
JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION,
No. 68 WABASH AVE.,
CHICAGO, ILLINOIS.

All members of the Association should send their Annual *Dues* to the *Treasurer*, Richard J. Dunglison, M.D., Lock Box 1274, Philadelphia, Pa.

LONDON OFFICE, 57 AND 59 LUDGATE HILL.

SATURDAY, DECEMBER 20, 1890.

MARRIAGE AS A REMEDY.

An old man, who had been an eminent physician and teacher, remarked that no act of his life gave him more regret, than his counsel to a wealthy, dissolute inebriate to marry. The result of that marriage was nine children. One was an epileptic, one was insane, two more feeble minded, hysterical, and very irregular persons. Two drank to excess, one of whom was a petty criminal. Three other children of this family died in infancy. Of the three grandchildren not one seemed to have average vigor or mental capacity. He remarked that the misery and suffering which came from this error of counsel, would at last end in the final extinction of the family.

In another instance an equally able physician, after years of unsuccessful treatment of a feeble minded, unstable, hysterical young woman, advised marriage. Insanity, inebriety and epilepsy were pronounced family diseases in her ancestors. Her marriage with a neurotic man resulted in six children, two of them dying in infancy, one is in the reform school, a thief and alcoholic; the fourth was married to a low Italian at fifteen, and is an impulsive strange woman; the fifth became insane at fifteen and suicidal; the last and youngest, has fits or periods of unconsciousness from any strain or excitement. These are not phenomenal cases, and are not uncommon in every community. They are presented to bring out the fact, of the exceeding danger of thoughtless counsel to marry, to neurotics and persons who are markedly degenerate, and have strong hereditary taints.

In a recent lecture by DR. STRAHAN, before the Medico-psychological Association of England, "On the Propagation of Insanity and Allied Neuroses," he urges that one of the most prominent causes of the increase of insanity and nervous diseases comes from marriage. He mentions the great difficulty in ascertaining the facts, because of the tendency to conceal family history in all cases; yet notwithstanding all the falsehoods of relatives the English Lunacy Commissoners were able to trace 25 per cent. of all the insane to this cause. From 25 to 90 per cent. of all insane are said to come from heredity. These are the two extreme figures, of eminent authorities who have examined this subject. Beyond all questions of possible dispute, numerous and well sustained facts, show the hereditary transmission of disease and diseased tendencies, and the degeneration which comes from marriage of defective ancestors. Nothing can be more serious and reprehensible, than medical advice to marry, or consent to the union of defectives, the results of which there can be no question. The unstable neurotic man or woman, the inebriate, the eccentric, the evident weak and degenerate, rarely ever in any possible way become stronger by marriage. The danger of propagation of all their defects and diseases is so pronounced, and certain, that the experiment is hazardous in the extreme.

Our present knowledge of the causes of nervous disease, sustain this statement fully. There is no restriction of marriage to-day except in the pronounced idiotic and raving maniac. No one is so diseased or deformed, or crippled, or defective in mind or morals, but may marry and become a parent of degenerate, helpless children, as far as the law is concerned. While this is a sad reflection on the intelligence and civilization of to-day, it reveals a field of reform which medical men of all others should occupy at once. All medical writers are unanimous in condemning marriages between defective and disordered persons, and yet public sentiment would not sustain to-day any special laws of restriction. Obviously this is one of the great fields of prevention of disease, that both medical men and legislators will occupy in the near future.

To-day all advance in this direction comes from those who breed animals for various purposes. Here a knowledge and application of a vast range of facts produce certain anticipated results, which

could be obtained with the human family with equal certainty. The duty of medical men, irrespective of all public opinion is to teach the doctrine of heredity, not of any special form of disease, but the transmission of defects, and of lowered vitality, and particular tendencies or taints, that cripple and disable the coming generation. To teach the laws of propagation, and thus prevent disease at the beginning, and cut short the terrible process of nature that hurries the victim down the road of misery and sorrow, to final extinction.

Never counsel marriage as a remedy or means of relief for neurotics or persons of defective heredity. Elevate and dignify marriage as a means to raise the race in every way from its childhood age. Although *Utopia* is far away, there are evident signs of progress towards it, and when marriage becomes a subject of strict legislation, a long stride forward will be taken.

MAKE HASTE SLOWLY.

It is not singular that when a remedy for tuberculosis is announced, the medical profession of the entire world should endeavor at once to verify its claim and pass judgment upon its merit. As soon as it was known that there was a possibility of demonstrating the truth or falsity of DR. KOCH'S claim thousands of men, representing almost every prominent medical centre upon the two continents, have gone with utmost haste to Berlin, with the two-fold purpose of securing the newly discovered remedy, and of gaining the necessary instruction as to the method of its administration.

Not only so, but the victims of consumption are thronging the streets of that city by thousands, and the faith of the laity was hardly ever so committed to any medical discovery as they are to this. In the onset of this intense excitement it is needful that our medical men shall pursue a conservative course. It is not needful that they shall be skeptical, nor that they shall prejudge the facts. Nay, it is the glory of conservatism that it holds its way in its progressive course fully abreast all well attested facts, but it is also to its credit that it goes no farther. If a remedy for this dreaded scourge of the human race shall have been found, we cannot possibly be too prompt in the use of all legitimate methods for its application. But it were a cruelty beyond expression to raise the expectation of mankind to such a pitch as this announcement has done, and then to doom it to disappointment. The character and standing, at home and abroad, of the men who have this remedy in hand, forbid for a moment the thought that they would practice upon the credulity of men for mercenary ends. They are surely honest in their convictions. But is it not possible that the untold value of such a discovery may have led to the indulgence of oversanguine expectations and to an over-statement of practical results. The danger is that the ardent desire to give to mankind such a priceless boon, will lead to expressions more radical than can be realized. Time must be an element in the decision of this question. It is surely the part of wisdom that evidence shall precede judgment, and it is due to our suffering patients, the victims of consumption, that our promises of cure shall be only such as they may surely realize.

KOCH AND HIS CRITICS.

In general the attitude of the medical press has been fair and judicial, with a full disposition to accord to DR. KOCH, his own time and pleasure as to the manner he shall make his discoveries known. We notice now and then a spirit of carping criticism in these particulars and a disposition to belabor the eminent investigator for not immediately unbosoming himself. It would seem that any one who had devoted eight years to the solution of a problem of the utmost importance to science and humanity ought, at least, to be accorded the meagre privilege of dictating the manner of its publication. Dr. Koch has shown no disposition to profit directly by his discoveries, and it would seem that if he withholds it for a time it is probably for a good reason, and with his simple statement the profession ought for the present to be satisfied.

It is apparent on a careful reading of his original paper, that it is not a remedy that can be used indiscriminately in every case of tuberculosis. For he distinctly delimits its curative effect to the earliest stages of phthisis and to certain local affections, warning the profession that all medical and surgical means are to be used in combatting the disease. The tone of his paper is eminently fair and free from special

pleading. It is to be regretted that the great bacteriologist could not quietly pursue his investigations, and place them completed and symmetrical before the profession.

Another class, followers of the new school in pathology, who refer many diseased processes to parasitic germs; it is amusing to see how gingerly they have approached the new light and how carefully they have refrained from committing themselves. Stoutly affirming, as they have for years, that each germ and ptomaine must have its living or chemical antidote, when the demonstration was offered they drew back. When the great high priest of the microörganisms brought forth the glad tidings, they stood like doubting Thomas, afraid to believe.

THE NATURE OF KOCH'S "REMEDY."

While it is perhaps idle, we cannot refrain from speculating a little as to the nature of the substance used by Koch. When his paper was read before the Congress it was supposed that it was in the nature of a minimized virus, a kind of inoculation like that of PASTEUR. This idea came from confounding the researches of GOUCHER and MARTIN who published their papers shortly after his. A careful reading of KOCH'S communication would at once dispel this, as he speaks of it as a remedy or substance, in much the same terms as one would speak of a drug. Since the second paper, some salt of gold has been thought to be the curative agent. We doubt, however, if it belongs to any of these classes, as no known chemical substance or drug will produce the stormy febrile movement, with the exception of those that are formed as a result of bacterial growth. It will be remembered that we referred editorially, some weeks ago, to a substance obtained from beer yeast that produced a quick, sharp, febrile movement, (the malaise, pains, etc., caused by Koch's injections are but post-febrile phenomena). Another substance termed "tox albumen" has been obtained by the cultivation of the Klebs-Lœffler bacillus. Not only are these products raised by the nature of the bacillus but also by the soil in which they grow and other conditions. We venture the prediction that the "remedy" belongs to those substances produced by the action of bacterial growth.

EDITORIAL NOTES.

A VEGETARIAN'S RECANTATION.—The *Medical Record* has a note concerning a certain Dr. Alanus, formerly a leader among the vegetarians of Germany, who has felt constrained to return to a meat-diet. The occasion of this change of mind was in the fact that he found his arteries were becoming atheromatous while he was yet under 40 years of age. At first he knew not how to account for this premature degeneration, since he had at no time been a drinking man, but having one day taken up one of Ernest Monin's semiological essays showing that an abstinence from meat-diet tended to produce atheromatous changes in the blood-vessels, his eyes were opened. He therefore abandoned an exclusively vegetable dietary, at the same time lamenting that a single brutal fact could so completely upset a vast and beautiful theoretical structure.

PAINLESS GOUT.—Mr. Jonathan Hutchinson has published in a late number of his *Archives of Surgery* some of his interesting experiences in rheumatism and gout. Pain is a symptom that is not essential to gouty inflammation. When gout affects the cutaneous and cellular tissues chiefly, it may very well happen that there is little or no pain. In many cases of even acute gouty inflammation, redness and swelling may be present while pain is almost wholly wanting. In such cases the diagnosis of erysipelas might very likely be made; for as Mr. Hutchinson says he has seen, in some instances, the œdema spread up the limb, and this suggestion as to diagnosis would appear to obtain an item of important corroboration.

THE INSULAR TREATMENT OF DIPSOMANIA.—Dr. Karl Kahlbaum presented before the Berlin Medical Congress considerations to show that this question has become a subject of international importance. He spoke of the painful position of the psychiatrist who is asked to advise in cases of chronic alcoholism. In his view, many of these patients were diseased before they became inebriates, or they presently became diseased in consequence of the drink. In either case the misery resulting is the same, an overmastering desire for alcohol which cannot be subdued or avoided. The chain of symptoms of alcoholism, such as tremor, paralysis, epilepsy, partial or general mental derangement, is well enough

known, but it is not always considered sufficiently important for a lodgment of the inebriate in some medical institution, which is in reality the only fit place for him. As soon as these morbid phenomena lighten up and disappear the patient is allowed to be discharged as cured, but the strong presumption is that no sooner will he have regained his liberty than he repeats his error. If he were retained longer in hospital there might be more hope of a genuine cure, but most institutions are glad to be rid of him and the patient himself is endowed with little patience with his detention, and his own desire is to leave without much reference to the state of his cure It is also true that the institutions for inebriates are too limited and at the same time exposed to danger. The plan which seems to offer the most hopeful results would be a general consensus to have an island set apart for these subjects of intemperance. Nothing short of a combination of medical men, with the assistance of some wealthy layman, will overcome the difficult problem where inebriate retreats must be established; this company should undertake the management of the island, under a State authority to prohibit the importation or production of every kind of alcoholic drink. An even wider scheme of organization might follow later under which the inebriate might have his family transported to the island along with him, and in this case it would become necessary to provide the means of employment and livelihood for these people, and agriculture in some of its forms would probably be the least objectionable pursuit at the outset of the undertaking. Such an organized insular colony might also be useful for some cases of morphine addiction, tabagism and other forms of irrational indulgence. Dr. Kahlbaum supports this insular *modus medendi* by the following considerations bearing upon the mechanism of the extravagant thirst for alcohol present in these cases: The presumption of those who look for a physical basis for this desire is founded on the theory that a molecular change takes place in the nervous system which disturbs the equilibrium when the alcoholic derivative is withdrawn after a long continuance of its use. When the unsteady molecular stage has been reached the alcoholic longing is intense and nothing short of total abstinence will conquer it. If the organic impressions have not been too deep or too wide, this molecular condition may soon be restored to its former equipoise by the withdrawal of its cause, but where organic changes have taken place, a much longer time will be necessary for a restitution of tone. Absolute denial of alcohol is the rational mode of treatment for alcoholic habituation, but this must be continued long enough to remove the morbid changes and their consequences.

THE BACTERIAL WORLD.—This is the title of a monthly illustrated magazine for the study of microörganisms and diseases of bacterial and parasitic origin, the first number of which will appear January 1, 1891, under the editorial supervision of Paul Paquin, M.D., Director of the Bacteriological Laboratory, State University, Columbia, Mo.

One of its distinguishing features will be a series of studies in bacteriology which will enable the physician in his home to keep himself abreast of the best methods of investigation, and the successive articles upon hygienic medical and surgical bacteriology will meet an essential want of which every physician is conscious, and which he is anxious to satisfy. Each number will contain from thirty to forty pages, well illustrated, at a cost of $3 per year. We bespeak for this new journal a liberal patronage.

THE UNIVERSITY MEDICAL MAGAZINE.—This valuable monthly medical journal proposes to add to its already well-filled columns a new and, as we anticipate, an exceedingly valuable department, devoted to Medical Progress. The Sections will be under very able supervision, as follows: That of Medicine will be conducted by Drs. William Pepper and James Tyson; Surgery will be represented by Drs. D. Hayes Agnew and J. William White; Therapeutics will be supervised by Dr. Horatio C. Wood; Gynecology will have the special services of Dr. William Goodell; and Obstetrics that of Dr. Barton Cook Hirst. The policy of the magazine will be to limit itself strictly to the publication of original matter. The editorial supervision, at present so able, and the added labor of those whose names we have enumerated, are an ample guarantee for the production of a journal of a very high order of merit, which shall more and more redound to the credit of American medical literature.

WEISS, of Vienna, says that an early symptom of locomotor ataxia, is inability of the patient to walk backwards, while in other ways the patient may walk with rapidity and certainty.

TOPICS OF THE WEEK.

PROTECTION FROM DIPHTHERIA AND TETANUS BY INOCULATION.

By the courtesy of the *Deutsche Medicinische Wochenschrift* your correspondent has received advanced proofs of an article on the prevention of diphtheria and tetanus in animals, based upon experiments in the Hygienic Institute at Berlin, made by Dr. Behring, assistant in the institute, and Dr. Katasato, of Tokio. After long experimentation these observers claim to have cured animals suffering from either of these diseases—diphtheria and tetanus—by the inoculation of the serum from the blood of animals already infected. It is claimed by a large number of experimenters, first, that the blood of rabbits protected from tetanus possesses the property of destroying the tetanus poison. Second, that this property is possessed by the non-cellular serum obtained from the blood. Third, that this property is of so constant a nature that it also remains active in the organism of other animals, so that notable therapeutic effects are produced by the transfusion of blood or serum. Fourth, the property of destroying the tetanus virus is absent in the blood of those animals which are not protected against tetanus, and if the tetanus virus is injected into non-protected animals, it can be so demonstrated, even after the death of the animals, in the blood and other fluids of the body.

In the test of the degree of immunity a rabbit previously protected received 10 cc. of a germ containing virulent tetanus bacilli culture, of which five-tenths cc. sufficed to make a normal rabbit yield inevitably to tetanus. The protected rabbit remained entirely healthy. He had not alone secured immunity against infection with living tetanus bacilli, but also against the tetanus virus, as he tolerated twenty times the amount of a poison which suffices to kill, without exception, normal rabbits.

Blood was taken from the carotid artery of this rabbit. From this fluid blood (before coagulation) two-tenths cc. were injected in the abdominal cavity of one mouse; five-tenths in that of another mouse. At the end of twenty-four hours both animals, together with two mice, were injected with virulent tetanus bacilli, and to such an extent that they were attacked by tetanus twenty hours afterward, and died in thirty-six hours. On the other hand, both previously treated mice remained perfectly healthy. The larger amount of blood was allowed to stand until serum had formed abundantly, and of this serum six mice received each an injection of two-tenths cc. into the abdominal cavity. After the infection, which occurred twenty-four hours later, all six animals remained healthy, while the unprotected mice died of tetanus in less than forty-eight hours. Therapeutic results may also be secured by the serum in the following manner: The animals are first infected by inoculation, and then the serum is injected into the abdominal cavity. Experiments with the serum were also made tending to show its great virus-destroying property. Of a ten days' tetanus culture, which had been made free of germs by filtration, .00005 cc. sufficed to kill a mouse at the end of four to six days, and .0001 cc. to kill in less than two days.

Now, we mixed .0001 cc. of this culture and allowed the serum to act twenty-four hours upon the tetanus virus contained in the culture. Of this mixture, four mice received each 2. cc. up to .033 cc., or more than three hundred times the dose otherwise fatal to mice. Four mice remained permanently healthy, while the unprotected mice died at the end of thirty-six hours from .0001 cc. of the culture. The mice, in all the hitherto-mentioned series of experiments, both those into whose abdominal cavity serum was injected, and those who were injected with a mixture of tetanus virus and serum, have remained permanently protected. They resisted subsequently repeated inoculations with virulent tetanus bacilli. This fact is especially noteworty because in the innumerable individual experiments no mouse, no rabbit, in fact, no animal hitherto tested, had been found protected, and because the very long-continued attempts in the Hygienic Institute to make animals safe against tetanus by the hitherto known methods, have been entirely unsuccessful. The authors claim that they are justified in drawing the conclusion that the above expressed interpretation of the occurrence of immunity which at once, and without any difficulty shows a positively effective, and for the animals, entirely innocuous method of producing immunity, also satisfied the need of preventing its causation. As a matter of course, experiments were also made with the blood and serum of non-immune rabbits. This blood and serum proved therapeutically, as well as prophylactically, to have no influence upon the tetanus virus. This was also true of cow, calf, horse, and sheep serum, as was shown by special experiments. The blood within the vessels of living non-protected animals also possesses no tetanus destroying properties, as appeared from the following experiment, which was repeatedly made:

Animals who received a subcutaneous injection of .5 cc. of a virulent tetanus culture, free from germs, died after five to six days with typical symptoms of tetanus. At the autopsy, in almost every case, a serious transudation is found in the pleural cavity. Of this transudation .3 cc. on the average, suffices to produce tetanus in a mouse, and to kill the animal, and in the same dose the blood of a tetanus-poisoned animal again produces tetanus in mice. In conclusion, the authors express a hope that the principles demonstrated in these experiments may in time be applied to the treatment of diphtheria and tetanus in man.—Berlin Correspondent, *Medical Record.*

THE INFLUENCE OF ELECTRICITY UPON THE LOWER FORMS OF LIFE.

Slight electric shocks from a coil (induced current), increase the rapidity of the protoplasmic movements; stronger ones cause tetanic contraction, and numerous and powerful ones produce coagulation. "A constant current causes contraction and imperfect tetanus; and if powerful and long kept up, the positive pole produces in the Amœbæ near it the same changes as dilute hydrochloric

acid, and the negative pole the same changes as are produced by an alkali such as potash." Upon Infusoria, weak electric currents first quicken the ciliary motion and cause movement of rotation, then swelling of the protoplasm, slower movements and finally apparent solution of the protoplasm. Moderate currents produce a tetanic contraction of the protoplasm and of the cilia, while the contractile vesicle is unaffected. Strong currents cause liquefaction of the protoplasm.—Geo. E. Fell, M.D., *The Microscope.*

THE COAGULATION OF THE BLOOD.

MM. Arthus and Pagès (Brown-Séquard's *Arch. de Phys.*, October,) have propounded a new theory of the coagulation of the blood. Starting with the idea that the curdling of milk presents analogies with blood coagulation, these authors, after applying the same methods of investigation to the two processes, have arrived at the following conclusions: 1. Oxalates, fluorides, and alkaline soaps render blood non-spontaneously coagulable, even when added in very minute proportions. 2. It is upon fibrin formation, and not ferment production, that the action of these bodies is exerted. 3. These bodies produce this effect by removing soluble calcium salts from the blood. The addition of a trace of a soluble calcium salt renders blood once more coagulable after it has been rendered non-coagulable by the addition of soluble fluorides, oxalates or soaps. The *rôle* of calcium can be played by strontium, but not barium or magnesium. 4. The ash of the most carefully washed fibrin contains calcium salts, and the amount of clot obtained is proportional to the amount of calcium when a minute amount only is present; hence the molecule of fibrin contains calcium. This may be replaced by strontium. 5. The ferment is unable to act upon fibrinogen, except in the presence of a soluble calcium salt. 6. The rival theories of Al. Schmidt and Hammarsten are reconciled by adopting the view that fibrinogen undergoes in the presence of the ferment and of soluble calcium salts a transformation into an insoluble calcium compound—fibrin. Schmidt's fibrinogen contained no calcium, while his fibrinoplastin did; Hammarsten had no need of fibrinoplastin, for his fibrinogen contained the necessary lime. 7. The curdling of milk is due to a transformation of casein under the influence of a ferment, giving rise to the formation of an insoluble calcium compound. The clotting of blood is an analogous process. Green, of Cambridge, showed a few years ago that the presence of a minute quantity of calcium was essential for the production of a clot, but MM. Arthus and Pagès have much extended his observations.—*Brit. Med. Journal.*

CHOLERA THREATENED.

According to the secular exchanges, the Eastern countries have become the subject of cholera ravages. Abyssinia has suffered a loss of more than 10,000, Spain is infected, and India has been reached. More than 80,000 have perished in Japan, Korea and the contiguous Asiatic provinces of Russia. All this loss within a few months.

"The danger of the present epidemic," says one account, "is greatly increased by the yearly pilgrimage of Moslems to Mecca. The great body of these ignorant Mussulmans who congregate in Mecca are filthy in their habits, and by consequence readily contract the disease, and thus spread the infection in Syria, Turkey, Southeastern Austria and the provinces of Northern Africa. The present plague exists to some degree in most of these countries, but it will soon be augmented by these Mecca pestilence breeders."

The course of the plague is like to that followed in the past, namely: the route from Bekor to Alexandria and through the Levant. We are nevertheless consoled by the assurance that quarantine enactments are more comprehensive, prophylaxis more complete, and therapeutic measures are to be perhaps more trustworthy. At all events, a very encouraging feature is that there seems to be less alarm on the part of the public than ever was known before. The popular idea is that the predicted spring visitation is a mere probability, likely to be behind time.

AN ANECDOTE OF SIR ASTLEY COOPER.

Before Astley Cooper was 40, he had a practice in value rising $75,000 a year; indeed, his books show one year's fees collected, $105,000. In 1820, at the height of his success, he was called in to remove a steatomatous tumor from George IV's scalp. On the day appointed, he waited upon his Majesty. Lord Liverpool and other cabinet officers occupied a room adjoining that in which the King was. In preparing for the operation, Cooper was observed to be pale and nervous, when Lord Liverpool, taking hold of his hand, said: "You ought to recollect that this operation either makes or ruins you. Courage, Cooper." This timely rebuke so impressed him that every trace of anxiety vanished, and he performed the operation with his wonted dexterity. This won his baronetcy with remainder to his nephew, who succeeded to the title.

NO MAN LIVETH TO HIMSELF.

Among the animals to which man gives his involuntary assistance, we may mention first, four different Cestoidea, or tape worms, which live in the intestines; three or four Distomes, which lodge in the liver, the intestines or the blood; nine or ten Nematodes, which inhabit the digestive passage or the flesh. There are also some young Cestodes, named *Cysticerci, Echinococci, Hydatids*, or *Achephalocysts*, which find in him a *créche* to shelter them during their life. These always choose enclosed organs, like the eye-ball, the lobes of the brain, the heart or the connective tissue. We also provide a living for three or four kinds of lice, for a bug, for a flea, and two ascarides, without mentioning certain inferior organisms which lurk in the tartar of the teeth, or in the secretions of the mucous membranes.—(*Van Beneden.*)

And after these come *the microbes*!

A LEGAL DEFINITION OF TOTAL HELPLESSNESS.

A bill has been introduced into the United States Senate defining "total helplessness" as applying to all persons who lost a leg or an arm at or so near the joint that an artificial limb cannot be used, and granting all such persons a pension of $72 per month.

PRACTICAL NOTES.

TURPENTINE IN TYPHOID FEVER.

Dr. H. C. Wood advises a return of the turpentine treatment of typhoid fever as practiced by Dr. G. B. Wood. He begins its use about the twelfth or fifteenth day, thinks it lessens the tendency to hæmorrhage, and ameliorates other symptoms due to the local lesions.

His formula is:

℞. Oil of cloves, gtt. vj.
Oil of turpentine, f ʒ jss.
Glycerine.
Mucil. of acacia, āā f ʒ ss.
Syrup.
Water, āā q. s. ad f ʒ iij. ℳ.

Sig. Dessertspoonful every three hours during the day.—*Medical News.*

FOR ACUTE ECZEMA AND IRRITABLE CONDITIONS OF THE SKIN.

℞. Cocainæ hydrochlorat., gr. iij.
Atropinæ sulphat., gr. j.
Morphinæ sulphat., gr. ij.
Ung. acidi carbolici, ʒj. ℳ.

—Shoemaker, *Times and Register.*

IRRITABLE BLADDER.

Dr. E. L. Tunstall recommends the following mixture in cases of irritable bladder:

℞. Potassium citrate, 4 drachms.
Fluid ext. triticum repens, Tincture of hyoscyamus } of each 1 oz.
Fluid ext. of buchu, ½ ounce.
Water sufficient to make 3 ounces.

One teaspoonful in a wineglassful of water three or four times daily.—*Medical Summary.*

CHLOROFORM LINIMENT.

℞. Chloroform, 4 ounces.
Camphor, 1 ounce.
Fluid vaseline, sufficient to make 8 ounces.

Dissolve the camphor in the chloroform and then add the fluid vaseline. Of course, the amount of vaseline may be varied according to the strength of the liniment desired. It is said that this makes a much more useful application than chloroform liniment made with olive oil.—*Medical News.*

SALOL IN MALARIAL DIARRHŒA.

Dr. Moncorvo, of Rio Janeiro, strongly recommends salol in the treatment of diarrhœa, complicating malaria, in childhood. His paper, which is published in the *Revue Mensuelle des Maladies de l' Enfance* for October, contains a series of cases of various ages. He states that the diarrhœa rapidly decreases, and soon ceases altogether, and the stools are no longer offensive; flatulence and colic, due to abnormal intestinal fermentation, cease to be troublesome. His general conclusion is that salol is a valuable agent for producing "intestinal antisepsis in children with enteritis or entero-colitis of malarial origin." He administered the remedy suspended in mucilage, and found it well taken, even by very young children. No poisonous symptoms were ever observed to follow its use. The dose given to an infant in the first few months of life was 15 to 20 centigrams (about 2 to 3 grains); for a child under 2 years, 25 to 50 centigrams (about 4 to 7½ grains); above 2 years, from 1 to 2 grams (15 to 30 grains).—*British Medical Journal.*

TINCTURE OF SUNFLOWER IN MALARIAL FEVERS.

Zubovitch has described in *Vratch* his use of sunflower in a variety of malarial affections. He has used the drug in the form of a tincture of either the fresh bark of young stems or of the fresh flowers. Of this he would give to an adult a wineglassful three times a day, the administration to be continued for two or three days after the paroxysms have been broken up. His experience leads him to state that, 1, the sunflower treatment is competent to the permanent and complete cure of malarial fever in from three to ten days; 2, it has overcome cases that have not yielded to quinine; 3, its range of application is limited to no type of malarial poisoning, all the various types in which he has tried it being alike equally amenable to it; 4, no unpleasant symptoms have been manifested as due to the drug except an occasional profuse nightsweat; and 5, the tincture of the flowers seems to act more rapidly than that of the bark.

THE RAW THROAT OF DYSPEPSIA.

Cases of symptomatic cough without physical signs present themselves to every chest clinic. The patient generally reports, also, some pain in the sternal region and under the left scapula; constipation frequently a concomitant. Such cases are dyspeptic in origin, and the cough is popularly known as "stomach-cough;" pyrosis may be present with or without regurgitation and a bitter taste in the mouth, and other signs associated with dyspepsia. If the throat is very raw or sore and the soft palate relaxed the following gargle may be ordered:

Sulphate of zinc,
Carbolic acid, of each, 4 grains.
Glycerine, 4 drachms.
Water, 3½ ounces. ℳ.

Use as gargle three or four times daily. This is a favorite at the University of Maryland clinic, and is known as "McSherry's gargle" from its originator, Dr. H. Clinton McSherry, of Baltimore. Internal treatment by means of tonic or antacid remedies will also be required in many cases.

SOCIETY PROCEEDINGS.

Medical and Chirurgical State Faculty of Maryland.

Semi-annual Meeting held at Cambridge, Md., November 11th and 12th, 1890.

THE PRESIDENT, DR. T. A. ASHBY, IN THE CHAIR.

DR. A. H. BAYLEY, of Cambridge delivered the *address of welcome.*

DR. T. A. ASHBY delivered

THE PRESIDENT'S ADDRESS.

After hastily reviewing the early history of the Faculty, its power, its control of the medical profession in this State and its high authority, he spoke of the causes which led to shrinkage of its membership and its loss of authority over the profession. The meetings had always been held in Baltimore. This made it a local society. These semi-annual meetings were started to interest the county members, the fees were reduced and a large accession of members was the result. The Medical Practice Act was vetoed by the Governor, who was influenced by unprincipled politicians. This was a direct insult to the respectable members of the medical profession of Maryland. Physicians have no lien on an estate, no preference in court.

The profession of this State should organize in order to achieve success. This can only be done by this Faculty. To this end local societies should be encouraged in all the counties of the State. Since last year over one hundred members have been added to the society and the prospects were most encouraging.

Dr. R. Winslow then read a paper entitled

SIMULTANEOUS DISTAL LIGATION OF THE RIGHT COMMON CAROTID AND RIGHT SUBCLAVIAN ARTERY FOR SUPPOSED INNOMINATE ANEURISM. RECOVERY FROM THE OPERATION.

A dissipated woman had five miscarriages. There was pulsation at the root of the right side of the neck at the sterno-clavicular articulation. She was put on low diet and given iodide of potash, ten grains. Effect not being good, an operation was performed and the subclavian and innominate arteries were ligated at their distal ends. She was kept quiet for some time and now seems to be well. In such cases if the aneurism shows no tendency to break or cause great inconvenience, try postural treatment and the iodides and postpone operation. He then gave some statistics of similar operations, and the number of aneurisms in age and sex. His operation is not dangerous when done antiseptically and with an absorbable ligature.

DR. R. W. JOHNSON thought in 1871 very few antiseptic operations were performed, and even now surgeons do not always operate antiseptically. It is not a point of election whether you do a distal or a proximal ligation. The strong pulsations of the heart are apt to break through the weakened arterial walls. He also thought that the absorbable ligature was by far the best.

DR. WINSLOW said that most men mentioned were those who operated since antiseptics were introduced, and it was fair to presume that they used it.

DR. S. T. EARLE then read a paper on the

USE OF ELECTROLYSIS IN STRICTURE OF THE RECTUM.

The definition of electrolysis should be exact. A good battery and a reliable milliampèremeter are both indispensable. A Leclanché battery of 30 to 50 cells is sufficient. A salt solution on the skin increases the electrolysic action. He related several cases in which he used electrodes gradually increasing in size, and in suspicion of syphilis giving the iodide of potash.

DR. WINSLOW asked if these cases had been under observation long. The cure can not be maintained too soon after the operation.

DR. W. S. GARDNER referred to one case noted in which an electrode no larger than a match could be introduced, while after a short time Dr. Earle claims to introduce an electrode one inch in diameter. Was this electrolytic action or simply dilatation?

DR. EARLE said that one case operated on two years ago was practically well now. As for the electrode, he said that often an electrode could not be introduced at first, and after the current was turned on it went in easily.

Dr. W. P. CHUNN referred to one of the cases mentioned in which Dr. Earle said there was a neoplasm in Douglas' cul-de-sac. This disappeared after treatment. Did he think it was a growth removed by the electricity.

DR. PRESTON said he had not used electricity in this connection, but only in facial blemishes, etc. He thought the idea was only to decompose the tissue by a weak current, and not to cauterize it by a strong current, as Dr. Earle seemed to do. Some currents are too high.

DR. EARLE said in reply to Dr. Chunn that it was not a myoma, but simply an infiltration of tissue around the rectal walls. In reply to Dr. Preston he said his experience with both weak and strong currents in these cases was that the strong current was decidedly better. These currents do not produce cauterization.

DR. S. K. MERRICK then read a paper on

SOME OBSERVATIONS ON FIBROMA OF THE NOSE AND NASO-PHARYNX WITH A REPORT OF THREE CASES.

After defining fibroma and observing that the

cause was not evident in that the negro who was subject to uterine fibroids never had nasal fibroma, he drew up a general sketch of the diagnosis and treatment and then related at length these three cases.

Dr. John N. Mackenzie then read a paper entitled

POST-NASAL OBSTRUCTION IN CHILDREN.

This is a subject of the utmost importance. It is wonderful that only in the past fifteen years it has been studied. Meyer, of Copenhagen, was the first to introduce it in 1875. He called it adenoid growth of the naso-pharynx. The adenoma of the vault of the pharynx is the most common cause. It is generally post-nasal. Obstruction of the nares is incompatible with viability of the fœtus. It is most common in children from the fourth to fifth month. Pliny spoke of it. It grows from the vault of the pharynx as a mass of adenoid tissue, called by the Germans the tissue of Luschka, although discovered by Schneider. It begins by a proliferation, then small tumors appear which may hang down in the pharynx like stalactites or bunches of grapes. The papillomatous form of pharyngeal growth is more frequently met with in this part of the country, while patients from the West and Lake regions present the greatest varieties of growth. In Boston the stalactite variety preponderates. In England he found this very common. The diagnosis is sufficiently easy. It may be confused with a fibroma of the vault of the pharynx, but the treatment is the same. Those who do not make the diagnosis with the rhinoscopic mirror may use the finger. It is like touching an earthworm, and if blood is on the finger when withdrawn, these two facts will confirm the diagnosis. He uses the forceps which bear his name. When a child is brought to him with nasal obstruction or with symptoms of non-suppurative otitis media, he introduces those forceps without making a diagnosis, and rarely fails to bring away the growth. These growths have a great effect on the child, who breathes through his nose; his nose becomes flattened and he has a frog face. This facial expression is characteristic. Meyer, of Copenhagen, uses a "ringmesser" or guillotine knife introduced through the nose. The best methods seem to be the forceps. As a rule, he does not use anæsthetics. Occasionally the hæmorrhage is very severe.

Dr. B. W. Goldsborough, in referring to Dr. Merrick's paper, said he had seen one of the patients and he was entirely well.

Dr. Wilmer Brinton asked what was the smallest child operated on by Dr. Mackenzie?

Dr. Mackenzie said he did it to those in arms, three or four months. In referring to Dr. Merrick's paper he said the instrument was apt to break, as it had done once in his case. He said he did the operation every day, and at the Johns Hopkins Hospital in one month he did it 170 times.

Dr. S. K. Merrick said he used Mackenzie's forceps. In the cases where he could not reach with the forceps he used his finger with success.

Dr. Wilmer Brinton read a paper on

PROLAPSE OF THE FUNIS,

in which he related four cases which occurred in a thousand of his.

Dr. W. P. Chunn asked what the hæmorrhage was from in Dr. Brinton's cases.

Dr. B. W. Goldsborough said he had a case of this kind. He tried to stop the hæmorrhage in vain. Everything failed until he applied turpentine to the fundus of the uterus and all bleeding stopped.

Dr. Brinton said many people had never seen a case like the one he related. He had seen four, and in one he applied the forceps and the hæmorrhage came from the cervix. He kept tampons in for several hours, and gave ergot. He feels sure that the blood did not come from the interior of the uterus. It should be decided what course shall be followed the very minute the funis presents.

Dr. W. S. Gardner said such cases were very difficult to treat, and needed prompt attention.

Dr. J. C. Clark, of Federalsburgh, presented a case of

PROFOUND ANÆMIA.

He brought the case for diagnosis. The patient had been an invalid for eight years and had been under his treatment for the past year without much sign of improvement. The history is very imperfect. His countenance is poor, sight very bad, he complains of muscular weakness and sick stomach, nausea, and occasional vomiting; has a poor appetite, and feels languid. There has been no improvement for eight years—no better, no worse. He is pale. The urine contained no albumen.

Dr. Wm. Osler examined this case, and suggested that it was profound anæmia due to trouble in the large intestine. Such cases often have these retinal changes noted in this case, with gastro-intestinal changes. The patient was not much emaciated. In these cases iron is not good, but some form of arsenic is better. Cases of pernicious anæmia often fail to improve under iron and recover under full doses of arsenic.

Dr. W. S. Gardner then read a paper on

THE RELATION OF ALBUMINURIA TO PUERPERAL ECLAMPSIA,

in which he gave the results of a large number of cases at the Maryland Maternité. Heat and nitric acid were used. His conclusions were:

1. The presence of albumen in the urine of a pregnant woman is not sufficient cause upon

which to base a prognosis of probable eclampsia.

2. The failure to find albumen in the urine of a pregnant woman is no evidence of the absence, or at least of the continuance of the absence of the condition that gives rise to puerperal convulsions.

3. Albumen is so frequently found in considerable quantity in the urine of patients, immediately after the appearance of puerperal convulsions, that we are justified in making the statement, that the convulsions are the probable cause of the albuminuria.

DR. BRINTON was much pleased with this paper. He thought if we could collect a large number of cases, much more than presented in this paper, we should be warranted in drawing conclusions as he has done. We cannot always look to the kidney lesion as the cause of death.

DR. G. J. PRESTON thought that some conditions of the central nervous system might cause the trouble.

DR. OSLER said, that in Montreal he had made the autopsies for ten years, and that in not a single instance were the kidneys in such cases found normal, except in one case, which showed an immense cranial hæmorrhage—the clot extending from the third to the fourth ventricle of the brain.

DR. GARDNER thought this experience rather exceptional.

DR. PRESTON asked if the woman was systematically examined in each instance?

DR. GARDNER said that the urine was examined, in a routine manner, in each case, and was done with average care. The object of these urinary examinations was to see if this prognosis of eclampsia could be made before pregnancy.

DR. R. W. JOHNSON then read a paper entitled, *The Surgical Treatment of Non-pyæmic Abscess of the Liver, with Report of a Case*, in which he principally advocated aspiration, even in the smallest abscesses, as opposed to incision. The aspirator should be used in diagnosis.

DR. R. WINSLOW said that such cases were not so infrequent in this climate as many supposed. All cases he had seen were Germans. He does not agree with Dr. Johnson in the treatment with the aspirator. Small abscesses may be cured by the aspirator. An abscess of the liver should never be allowed to break. It may break inward, and cause death.

DR. WM. OSLER said he had seen more abscesses of the liver in the sixteen months that he had been in Baltimore, than in five years in Philadelphia. Some abscesses will not get well by aspiration; often they are so low down in the liver that they cannot be found except by laparotomy. Very often there is also a multiple pyelo-nephritis. He related a case in which the diagnosis was only made by incision.

DR. PRESTON also related a case of hepatic abscess occurring in his practice.

DR. JOHNSON closed the discussion.

DR. GEO. J. PRESTON read a paper on the

DIFFERENTIAL DIAGNOSIS AND TREATMENT OF PERIPHERAL NEURITIS.

He gave the pathology of the disease, its manner of invasion, the symptoms, and said it was often confounded with polyo-myelitis in the adult. He related a number of cases occurring in his practice. He thought that it was of more common occurrence than was usually supposed.

DR. WM. OSLER agreed with Dr. Preston in saying that peripheral neuritis was more common than usually supposed. There are often mistakes in the diagnosis, unfortunately. The gait is very characteristic. It is the "steppage" of the French, in which the foot is lifted high, to get the toes raised off the ground. This is so characteristic, that the diagnosis can be made from it alone. He had seen it after alcoholism, arsenical poisoning, and typhoid fever. It is so much like locomotor ataxia, that an unfavorable prognosis is apt to be made. He referred to a case in his own practice in which neuritis was mistaken for ataxia.

DR. H. HARLAN then read a paper entitled *Pyoktanin in Eye Diseases*. He was led to use pyoktanin from its unusual claims, as given in *Merck's Bulletin*. He thought it impossible for it to do so much. He had given it a very thorough trial, and was more than pleased with it. In some cases nitrate of silver was better.

DR. H. WOODS then read a paper on the *Injurious Use of Remedies in Eye and Ear Diseases*, in which he discussed the use of wrong remedies or strong remedies producing harm. Much of this was done by the general practitioner, who did not want to pass a case over to a specialist.

DR. HARLAN said he had seen such cases as related by Dr. Woods.

DR. WM. P. CHUNN read a paper entitled *Remarks on Vaginal Examinations*, and gave some very useful hints, and was well received by the Society.

DR. CHAS. P. NOBLE, of Philadelphia, thought the touch was often better than the speculum, except in cases of deep-seated tumors of the uterus, etc. He spoke of the methods of examination at the patient's house, etc.

DR. WM. B. CANFIELD read a paper entitled *Immunity and Protection from Disease*, in which he reviewed the latest theories on this subject.

After the election of new members, and routine business, the Society adjourned.

SUNBURN ON THE ALPS.—This is the subject of a paper in the *Alpine Journal*, by Dr. R. R. Bowles, Folkestone, England, whose contention is that sunburn is caused by the violet or ultra rays of light reflected from the snow, which reflected light is not, of necessity, the same in quality as that which is incident.

New York Academy of Medicine.

SECTION ON ORTHOPÆDIC SURGERY.

Stated Meeting, October 17, 1890.

V. P. GIBNEY, M.D., CHAIRMAN.

NON-UNION OF FRACTURED RADIUS.

DR. C. A. POWERS exhibited a patient in whom this condition had existed for many years, and also showed an extension apparatus which had given relief. The first fracture occurred twenty-nine years ago at the junction of the middle and lower thirds. A re-fracture took place eighteen years later, and united with deformity and disability. The radial nerve had become involved in the callus, and this gave rise to such intense pain that she underwent an operation for its relief, five years later, in which the bone was again fractured. All attempts to cause this fracture to unite failed. When she came under the care of the speaker in May of the present year, it was found that the carpus had slipped upwards with the lower fragment of the radius, and had caused the ulna to project very forcibly against the soft parts, giving rise to much pain in the region supplied by the ulner nerve. As further operative measures were not deemed advisable, a simple extension apparatus was applied, and had answered admirably.

DR. A. M. PHELPS said that he thought it had been wisely decided not to subject the patient to further operation, as fractures of the radius and of the lower third of the tibia were peculiarly prone to non-union. Out of about three hundred osteotomies he had had only one case of non-union, and that was after an operation for the correction of an anterior tibial curve. Operations by himself and others had failed to bring about union. Thomas, of Liverpool, claimed that such fractures could be made to unite by pounding the parts with a mallet; but in his experience, this method had not proved successful, and he thought that where there was muscle between the ends of the bone, and the peculiar ivory-like condition of the ends of the bone, which was not uncommonly present, none of the methods heretofore proposed were likely to prove successful. He had very recently proposed and performed an operation which he thought might prove successful. It consisted in cutting down upon the ununited fracture, freshening the ends of the bone, and grafting in between them a part of the forearm of a dog, both patient and dog being secured in plaster of Paris. When the graft had united firmly, the dog's leg would be amputated, and the skin flaps of the dog united to those of the patient.

HIP-JOINT DISEASE AFTER TYPHOID FEVER.

DR. J. MC. G. WOODBURY presented a girl of 11 years, who six months after a severe attack of typhoid fever was found to have some limitation of motion and pain at the right hip, with distension of the capsule. Flexion caused lordosis, and some pain. She was treated by counter-irritation over the joint, and a plaster of Paris spica bandage, and was allowed to walk around upon a high patten, with crutches. Now, after a period of eight months, there was no pain.

A CASE OF OSTEO-MALACIA.

DR. WOODBURY also presented a case of this nature. The patient had lived in Switzerland until 20 years of age, and had suffered considerably from exposure during the late war. On October 26, 1886, when 43 years of age, he sustained a fracture of the surgical neck of the left humerus, and between that date and May 26, 1890, he received five other fractures, viz., two of the left humerus, two of the right humerus, and one of the left clavicle. Most of these fractures were caused by very slight falls. During the last three months, but more particularly since the first of last August, a tumor has been rapidly growing between the sites of the two fractures of the shaft of the right humerus. Two small tumors may be observed upon the clavicle—one at the point of the fracture, and the other, to the inside of it. A specimen removed from the large tumor with a harpoon was sent to Dr. J. S. Ely for microscopical examination, and he reported that it contained "polyhedral cells, and occasional large spindle and giant cells." He adds, that this "speaks very strongly for sarcoma." A loud murmur, similar to that heard in aortic aneurism, is audible over the large tumor. Dr. Woodbury said that as in cases of tumor of the middle of the spinal cord, osteo-malacia due to trophic disturbances is one of the early symptoms, concurrent with disturbances of sensation, he had referred the case to Dr. M. A. Starr with the hope of learning more about the etiology of this interesting condition. Dr. Starr examined the patient on two or three occasions—the last time, only a few days ago—and had reported that there was no central lesion of the cord. The patient had had no pain with the fractures, or upon re-setting these bones, and this, together with the fact that there had been no fractures of the lower extremity, seemed to favor the view that the condition was due to a syringo-myelia, or tumors of the cord.

DR. POWERS said that Dr. Woodbury's case of multiple fracture with tumors was very similar to a case of multiple sarcomata which he had recently presented to the Surgical Section.

DR. V. P. GIBNEY thought that the pulsation in the tumor might be due to the condition of the tumor itself—in other words, it might be a pulsating sarcoma.

ANKLE-JOINT DISEASE.

DR. A. B. JUDSON presented a case of this disease which he said was interesting because the

child had suffered from this condition almost all her life. The disease began at the age of 1 year and she is now about 7 years old. Notwithstanding that she had been under mechanical treatment only two years, she had recovered with but little disability and deformity. There was considerable lateral motion at the ankle-joint; extension was almost normal; flexion was arrested at about ninety degrees. Scars on both sides of the ankle showed where abscesses had opened spontaneously. There was a difference of one inch between the two calves, and the shortening amounted to only a small fraction of an inch. This result had been obtained by the aid of the simple brace, and without resorting to operation.

DR. JOHN RIDLON presented an astragalus which had been removed by Dr. B. Farquhar Curtis from a child, which had been brought to the speaker when only six weeks old. He had faithfully tried stretching, and the various retentive appliances during a period of one and one-half years. Dr. G. S. Huntington had then operated by Dr. A. M. Phelps' open method, but without improving the condition. The specimen which he presented was interesting on account of two bony prominences which it showed, and which apparently had been the obstacle to flexion of the foot.

THE TREATMENT OF ANKLE JOINT AND TARSAL DISEASE.

The paper of the evening, with the above title, was read by Dr. T. Halsted Myers, who also presented a patient illustrative of this subject.

DR. MYERS said that tubercular inflammation might attack, first, the synovial membrane, later, the cartilage, and lastly, the bone; or the primary local focus might be in the bone. While it was still confined to the synovial membrane, a number of surgeons recommended erasion. If it had attacked the bone, many more urged operative methods, irrespective of the general health of the patient. The author considered only the latter condition.

Simple incision was of no advantage, for we had no element of tension, as in acute processes, and we only opened new channels of infection, leaving the original disease unchanged. The usual method of treatment, curetting the abscess walls, and the sinuses, could not be expected to remove all disease, and would greatly increase the risk of absorption. The success which had been secured in some of these cases seemed to be due to the power of the antiseptic agent to render inert the bacilli which remained. The rational method was to remove all the disease at once; but apparently healthy bones contained tuberculous foci, and hence, it was a most difficult problem to know when to stop, and in fact, this could not be determined at the time of operation. If all the disease were successfully removed, the duration of treatment was less than under conservative methods. The ultimate results were, however, less satisfactory. He had seen a considerable number of misshapen and atrophied feet after operative treatment, which were weak and painful, and required support to render them able to bear the weight of the body. He had not observed such results from conservative treatment. It was confessedly difficult to ascertain the ultimate results; and although Dr. Schaffer had kindly placed the records of the New York Orthopædic Dispensary at his service, he had not been able in the short time at his disposal to do more in most of the cases than quote the histories.

The number of cases treated before July, 1888, was fifty-five, and of these, he knew personally that at least twenty-one were cured. Five were cases of synovitis, and sixteen of osteitis. The average duration of treatment in the latter was twenty-one and one-half months, the longest case being under treatment fifty-five months. The results in all were extremely good; yet under careful private treatment, still better results should be expected.

From our knowledge of the various ways in which the bacilli of tuberculosis may be spread in the body, it would seem that a primary tubercular process in a joint must be extremely rare. Drs. Prudden, Northrup, Biggs, and Thacher, to whom he had written for information on this subject, all considered that these affections were generally secondary, but agreed that primary joint lesions did occur. The practical importance of this was that the danger of general infection from a joint lesion which was not interfered with surgically was an entirely unknown, and probably extremely small, quantity.

Of the whole number treated (fifty-five), but three had died—one of diphtheria, one while tarsal disease was active, and the other, six months after a note of "nearly cured" had been recorded. In neither of the latter was the cause of death stated. However, in Dr. Scudder's report of eighteen cases of excision, six deaths occurred; three were due to the operation, or its direct effects; another might have been; and the other two were from tuberculosis, but occurred one and two years after the operations.

The treatment of synovitis consisted in absolute protection of the joint from traumatism. In children, he considered a perineal crutch absolutely necessary while walking. Ordinary crutches were invariably laid aside at times, and the joint left unprotected. In addition to this crutch, the foot should be protected by a splint to avoid local injuries, and to maintain a good position. There being no involuntary muscular spasm, while the disease was confined to the synovial membrane, traction was not necessary.

In cases of osteitis, the same protection of the joint was imperative, and if there were pain and

spasm, indicating the necessity for traction, this could be applied at the ankle, by means of a Dow's brace, or the apparatus of Dr. Sayre, or Dr. Foster.

The application of adhesive plaster to a painful ankle required more care than a dispensary case was willing to give, especially when abscess was present. For this reason, he had found it most serviceable to employ a leg brace, or plaster splint, worn constantly, and a perineal crutch for walking, which could be laid aside at night; or the Dow's brace as modified by Dr. Shaffer might be used.

Abscesses should be left entirely alone, and the sinuses simply kept aseptic. After the joint was considered cured, it was well to wear an ankle brace for some months to prevent twists. The malpositions found in the acute stages, were almost entirely due to muscular spasm, and did not require tenotomy, or other operative treatment.

In the later stages, there might be bony changes, and these, if not painful or progressive, did not require treatment. However, if these conditions did exist, and yet there was no evidence of active disease, an attempt should be made to restore and preserve the normal relations of the parts.

The value of hygienic surroundings during the treatment of these cases, could not be overestimated. His observations had been made on children only, and for contrast, an extended series of cases in the adult would be very valuable. Without exception, every one of his cases of ankle-joint or tarsal osteitis in children had done well under conservative treatment, and he had yet to see the case which he would condemn to erasion or excision.

Dr. N. M. Shaffer said that his own experience led him to think that one point in Dr. Myers' paper should be particularly emphasized, *i.e.*, the necessity of absolute protection of the articulation. He had accomplished this in practice, whenever possible, by the use of a modification of Dow's brace, and had found that adhesive plaster was rarely required, as a well fitting shoe made efficient counter traction. He thought that the further removed the tuberculous joint was from the centre of the body, the more benign was the disease, and the less the danger of general infection; and he was inclined to speak more strongly of the conservative treatment of ankle-joint disease, than of any other articulation in the body.

Dr. Ridlon thought these cases did well with the Dow's instrument; but with this as with some others, we could not secure immobilization, but only protect the joint from the jar of walking. He had seen such excellent results in cases of suppurative ankle-joint disease without any treatment whatever, that he often doubted how much of a good result could be attributed to the treatment received.

Dr. H. W. Berg said that he had had such good results in the treatment of phthisis by the administration of the bichloride of mercury in doses of one-twenty-fourth of a grain, three times a day, that he was inclined to believe the old theory that tuberculosis was really a change in the syphilitic virus due to passing through several generations. He considered that splints like Dr. Judson's were imperfect, for, by taking their bearing from the outside of the foot, intra-articular pressure was increased. To diminish this pressure, the foot must be adducted and rotated inwards.

Dr. Phelps was of the opinion that the vast majority of these cases were cured by immobilization and relief of intra-articular pressure, but in suppurative cases, he believed that the soundest and most scientific surgery demanded operative measures. If we could protect the hip-joint as well as the ankle-joint, we ought to get equally good results in hip-disease. He believed that these cases were inoculations of pathogenic germs on a diseased surface, and that they were purely local.

Dr. R. H. Sayre exhibited a splint which his father had devised for an adult with ankle-joint disease. He agreed with Dr. Ridlon, that it was difficult to apply traction at this joint, but he thought this splint solved the problem. His views regarding the prognosis and treatment of this disease, were in accordance with those just expressed by Dr. Phelps.

Dr. Samuel Lloyd said that fifteen cases of adult ankle-joint disease had been treated in the New York Post-Graduate School by the so-called conservative method, but the relapses had been very frequent, and he thought this method was less likely to yield good results in adults than in children. In answer to questions from the Chairman, he said that several of the cases were due to injury, and a number of them were suppurative, while four were recorded as synovitis. Two of the cases had been discharged as cured before 1883, and were known to be well in 1889.

Dr. Judson protested against the statement that cases of disease in the ankle would do equally well without treatment, although neglected cases of ankle-joint disease would have nothing like so bad a deformity as those at the hip.

Dr. H. L. Taylor also spoke about the different mechanical conditions present at the various joints. The weight of the limb exerted great leverage upon the joint, especially in a spasmodic condition of the muscles. It is more marked at the hip than at the knee, and very much more noticeable than at the ankle. He referred to a case of ankle-joint disease occurring in a distinctly phthisical subject, where the sinuses were treated

by injections of a saturated solution of iodoform in ether. The beneficial effect upon the healing process was almost magical.

DR. GIBNEY said that about ten years ago, the Surgical Section of the Therapeutic Society of New York, spent about two years collecting data relative to the comparative results obtained by the operative and non-operative treatment of this condition; and the conclusion was, that the conservative method yielded the greatest number of useful ankles, even in cases where the foot was seamed with cicatrices. There were two or three operative cases having a high degree of equinus, and a stiffened and shortened joint, and one or two flail joints were also shown. In his experience, cases of adult ankle-joint disease relapsed again and again on the slightest provocation; later on, abscesses would appear; still later, pulmonary signs would develop, and then amputation would follow. As regards the mercurial treatment of tuberculous disease of the joint he need only call attention to the fact that many years ago the routine treatment for these cases at the Hospital for Ruptured and Crippled was one twenty-fourth of a grain of the bichloride of mercury in the tincture of bark, three times a day; and the results attained by this treatment were certainly far from striking.

DOMESTIC CORRESPONDENCE.

Shall The Journal be Removed to Washington?

To the Editor:—The short editorial in THE JOURNAL of December 13, touching the question of its removal, is to the point. The responsibility of such a change should be with the members of the Association. The objection to leaving the decision of the matter to the next meeting is, that it will be composed largely of members from one section of the country, and those not in attendance, but equally interested, will be deprived of a voice in the matter. The question is too important to be settled by a partial vote. But how is it to be determined whether the Association is for or against its removal?

Let the question be submitted to the whole Association. For this purpose prepare blanks for votes. These can be sent with THE JOURNAL. When filled by those entitled to vote, send direct to the Secretary of the Association.

In this way, it appears to me the sense of the members may be obtained with but little trouble, and a possibly vexatious question satisfactorily adjusted. MADISON REECE, M.D.

Abingdon, Ill., December 12, 1890.

To the Editor:—In compliance with the invitation of the Trustees to discuss the resolutions referring to the removal of THE JOURNAL from Chicago to Washington, I beg leave to inquire what reasons the Committee have for making this change? This is a question which has agitated the American Medical Association more or less for years, and at one time assumed a sectional aspect, of the East *vs.* the West. The former seemed to hold to the idea that all the brilliant minds of our profession resided in the East, and for this reason the home of THE JOURNAL should be nearer the Orient.

Whilst I have no reflection to cast on the brilliancy of the medical profession in the East, yet I am of the opinion that that argument will no longer hold good.

It does seem to me that there are quite a number of good and sufficient reasons for keeping THE JOURNAL at the old homestead, where it was born, spent its childhood days, grew into manhood, and has matured into a good, healthy, robust adult, able and willing to take care of itself. Chicago is not only a great city but a great medical centre, and well worthy to be the home of our National Journal. It is not only more central, but a much greater railroad centre than Washington, its great trunk lines extending in all directions across the continent, from north to south and east to west, on which the fastest trains fly to and fro like the weaver's shuttle every hour, thus facilitating the rapid collection of material for THE JOURNAL, as well as the speedy distribution of THE JOURNAL to all parts of the world.

In conclusion: until there is a preponderance of evidence showing the unquestioned necessity for such a change, I stand as I did before, in favor of THE JOURNAL staying where it is.

R. HARVEY REED, M.D.

Mansfield, O., December 13, 1890.

Ether and Chloroform in Convulsions.

To the Editor:—On page 835 of THE JOURNAL for December 6, chloroform is suggested for convulsions in children, without any word of caution. I have used both chloroform and ether in convulsions of children, and, while I am not sure of any dangerous result from the anæsthetic *per se*, yet I never give it without extreme caution.

The following case is the first of the kind in my practice, and I have not related the case to any one so far who has had a similar experience—therefore I suppose it must be unusual. July the 25th last I was hurriedly called to see a little boy aged 4 years, who had been under treatment for fever and vomiting during the day. I found him in a convulsion which had lasted about four minutes. I noticed nothing unusual about the case, more than we usually see in a child with a convulsion, and supposed it was caused by excessive vomiting and fever.

I gave him a few minims of ether by inhala-

tion, which checked the spasm about the third inhalation. As I had my finger on the pulse all the while, I noticed that it disappeared with the spasm. I at once applied my ear to the chest and noticed that the heart was beating at about the rate of 250 per minute. This rate lasted perhaps twenty seconds, then dropped to the rate of about twenty-five beats to the minute. This pulse-rate continued about ten seconds, when the heart stopped. Respiration was not perceptible after the spasm left.

I learned from the attending physician a history of malaria. Patient had been treated with domestic remedies for "dumb chill" for two weeks previous to the attack, the last chill leaving patient with vomiting and fever, for which the physician was called in about four hours previous to the convulsion. He did not consider patient seriously sick, and was shocked to learn of the sudden termination of the case.

W. F. ROCHELLE, M.D.

Jackson, Tenn., December 8, 1890.

Seventh International Congress of Hygiene and Demograghy.

To the Editor:—I am requested by the Honorary Secretaries of the Committee of Organization of the Seventh International Congress of Hygiene and Demography, to call attention to the fact that this Congress will be held in London during the week beginning August 10, 1891.

The Governments of all countries, and municipalities, and all public health authorities, universities, colleges and societies occupied in the study of the sciences more or less immediately connected with hygiene, are invited to coöperate and appoint delegates to represent them at the Congress. The Prince of Wales will preside.

A Committee of Organization has been formed of which Sir Douglas Galton is Chairman, and Prof. W. H. Corfield and Mr. Shirley F. Murphy are Honorary Secretaries. An exhibition of articles of hygienic interest will be held in connection with the Congress. The last of these Congresses was held in Vienna in 1887, and was attended by over 2,000 persons, and it is expected that the London meeting will be one of great magnitude and importance. Very respectfully,

JOHN S. BILLINGS, M.D.,
Member of the International Permanent Committee.

Washington, D. C., October 27, 1890.

DR. SAMUEL BOURNE SWETT, the Boston Surgeon, died December 6. He was probably the last survivor of that colony of young physicians in Paris of whom Holmes has lately written in the *Atlantic Monthly*. He graduated from the Jefferson Medical College in 1834.

NEW INSTRUMENTS.

KOCH'S HYPODERMIC SYRINGE.

A very important result of bacteriological study is seen in the introduction of instruments that can be readily and thoroughly sterilized. To this end surgical instruments are now made as simple as possible and with the fewest number of crevices for the accumulation of dirt. An instrument, to be acceptable at this day, must possess not only simplicity of form but must also contain no materials that prevent it from being subjected to the most approved methods of sterilization.

In order to secure the advantages of an entirely aseptic instrument for the injection of his inoculation lymph, Prof. Koch has invented a new syringe to take the place of the old Pravaz pattern. Owing to the universality of the interest taken in Koch's new method of treating tuberculosis, this instrument will doubtless come rapidly into vogue throughout the world.

Through the courtesy of Messrs. Chas. Truax & Co., of Chicago, we are enabled to present a cut of one of the first of these instruments to be imported into this country, It is a very simple matter to sterilize this syringe each time after use. To accomplish this purpose a rubber bulb has been substituted for the piston of the older instruments. The cylinder is provided with a centimetre scale etched upon the glass, each division of the scale representing one-tenth ccm. The metal work of the syringe is particularly well fitted to the cylinder in an air-tight manner. So that the instrument can easily be taken apart and cleansed, which is best accomplished by means of absolute alcohol.

NECROLOGY.

DR. JAMES L. STEWART, died December 6, at his home in Erie, Pa., aged 66 years. He graduated from the Medical Department University of Pennsylvania in 1848, and entered the U. S. service as surgeon of the 3rd Pennsylvania Cavalry in July or August, 1861, but resigned March 11, 1862, after a hospital experience in Washington, D. C. He became President of the Penn-

sylvania State Medical Society in 1879 and was member of the Medical Congresses of 1876 and 1887. He also was a delegate to the Tenth International Medical Congress at Berlin, and had just returned. The sorrow of his life was the murder by the Apaches of his only son Lieut. Reid Stewart some eighteen years ago.

DR. E. HUGGINS BISHOP, one of the oldest residents of New Haven, Conn., died at his home on October 2. He was born in New Haven on February 11, 1807, and was therefore in his eighty-fifth year at the time of his death. He was a graduate of Yale, class of 1826, and of the medical department of the college in 1829. Most of his life was spent in the practice of medicine in his native city, and was for several years president of the New Haven Hospital Society. He retired from active practice about ten years ago.

MISCELLANY.

IN MEMORY OF RICHARD J. LEVIS.—At a meeting of the Faculty of the Philadelphia Polyclinic and College for Graduates in Medicine, the following preamble and resolutions were unanimously adopted:

WHEREAS the Divine Ruler of the Universe has seen fit to remove from among us Dr. Richard J. Levis, our friend and our colleague, therefore be it *Resolved*, that not only in the Emeritus Professor of Surgery of the Philadelphia Polyclinic but the whole medical profession have lost an honored and faithful co-laborer, and the community have cause to mourn a skilful and learned physician and honest and sympathizing friend.

Resolved, That by his kindness of manner, by the thoughtful interest which he always manifested in the younger members of the profession, by his encouragement, his earnestness, and his example, he had endeared himself to all, and that if we fitly honor and cherish his memory we must emulate his zeal, and vie with each other in carrying forward the great work in which he was so ardently engaged.

Resolved, That we tender to his family in this sad hour of affliction, our heartfelt sympathy.

Resolved, That these resolutions be handed to the family of our beloved friend, and to the medical journals.

THOS. J. MAYS, President.
S. SOLIS-COHEN, Secretary.

LETTERS RECEIVED.

Codman & Shurtleff, Boston; Clark, Forbes & Co., Miamisburg, O.; Dr. L. G. Contri, Wide Awake, Ky.; Geo. S. Davis, Detroit, Mich.; Dr. H. E. Jones, Elmira, N. Y.; Dr. J. D. Middlebrooks, Dr. A. B. Patterson, Atlanta, Ga.; Dr. E. S. Tuley, R. A. Robinson & Co., R. E. Queen, Dr. F. W. Samuel, Louisville, Ky.; Dr. Samuel Wolfe, Dr. W. B. Atkinson, University of Pennsylvania Press, Dr. John Aulde, Philadelphia; Dr. A. L. Worden, Dr. H. A. Clelland, Detroit, Mich.; Dr. A. R. Baker, Cleveland, O.; Wm. Whitford, Dr. Edmund Andrews, Rush Medical College, Chicago; Dr. Mattison, Dr. L. A. W. Alleman, Brooklyn, N. Y.; New Orleans Med. and Surg. Journal, New Orleans, La.; Hiram Ricker & Sons, South Poland, Me.; Dr. H. W. Carpenter, Oneida, N. Y.; Dr. W. C. Miller, Hyndman, Pa.; Dr. R. C. M. Page, New York Academy of Medicine, Maltine Mfg. Co., I. Jaros, J. T. Madden, I. Haldenstein, Leonard & Co., Dr. Simon Baruch, New York City; Dr. Paul Paquin, Columbia, Mo.; S. P. Teasgow, Peru, Neb.; Dr. Robert Battey, Rome, Ga.; C. A. Rust, Saginaw, Mich.; Dr. H. Moulton, Fort Smith, Ark.; Dr. Walter Wyman, J. A. Hill & Co., Washington; Dr. R. L. Nourse, Washburn, Wis.; Dr. T. J. Happel, Trenton, Tenn.; Dr. Walter Channing, Brookline, Mass.; Dr. T. T. Hillman, Birmingham, Ala.; Dr. G. C. Holcomb, Ulster, Pa.; Lambert Pharmacal Co., St. Louis, Mo.; Dr. H. A. Carrington, Buffalo, N. Y.; Dr. A. Ravogli, Cincinnati, O.; Dr. J. T. Reeve, Appleton, Wis.; Moore's Subscription Agency, Brockport, N. Y.; Dr. Isaac Louis, Boston; Dr. F. J. Hutton, Fort Mojave, Ariz.; Dr. A. P. Clarke, Cambridge, Mass.; Dr. R. Harvey Reed, Mansfield, O.; Dr. Madison Reese, Abingdon, Ill.

Official List of Changes in the Stations and Duties of Officers Serving in the Medical Department, U. S. Army, from December 6, 1890, to December 12, 1890.

Capt. Charles M. Gandy, Asst. Surgeon, now on leave of absence, will report in person, without delay, to Col. Eugene A. Carr, Sixth Cavalry, at Rapid City, S. Dak., for duty with troops in the field, reporting also, by letter, to the commanding General, Dept. of Dakota. By direction of the Secretary of War. Par. 14, S. O. 287, A. G. O., Washington, December 9, 1890.

Capt. Marcus E. Taylor, Asst. Surgeon, is relieved from further duty at Boise Bks., Idaho, and will proceed, at the expiration of his present sick leave of absence, to Vancouver Bks., Wash., and report in person to the commanding officer of that post for duty, reporting also, by letter, to the commanding General, Dept. of the Columbia. By direction of the Secretary of War. Par. 17, S. O. 287, A. G. O., Washington, December 9, 1890.

Official List of Changes in the Medical Corps of the U. S. Navy for the Week Ending December 13, 1890.

Medical Director Delevan Bloodgood, ordered to Charleston, S. C., to represent the Medical Corps U. S. N. at meeting of American Public Health Association.

P. A. Surgeon H. E. Ames, ordered as delegate to Charleston, S. C.

Surgeon D. N. Bertolette, detached from Naval Hospital, Philadelphia, and ordered to special duty in connection with World's Columbian Exposition.

P. A. Surgeon S. H. Dickson, from the "Atlanta," and granted two months' leave of absence.

P. A. Surgeon A. R. Wentworth, to the "Atlanta."

Official List of Changes of Stations and Duties of Medical Officers of the U. S. Marine-Hospital Service, for the Two Weeks Ending December 6, 1890.

Surgeon C. S. D. Fessenden, leave of absence extended seven days. December 4, 1890.

Surgeon P. H. Bailhache, granted leave of absence for twenty days. November 28, 1890.

Surgeon W. H. H. Hutton, to proceed to Solomon's Island, Md., on special duty. November 29, 1890.

Surgeon H. W. Sawtelle, granted leave of absence for ten days. December 2, 1890.

P. A. Surgeon C. T. Peckham, granted leave of absence for ten days. December 1, 1890.

Asst. Surgeon S. H. Hussey, when relieved, to proceed to New Orleans for duty. November 24, 1890.

Asst. Surgeon J. F. Groenevelt, when relieved, to rejoin station. November 24, 1890.

Asst. Surgeon L. E. Cofer, ordered to temporary duty at Boston, Mass. Nov. 24, 1890.